The Builder.

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The Water-Supply and the Rivers Pollution Commission.

WHATEVER questions may have arisen with regard to the course pursued by the successive Commissions on the subject of the pollution of rivers, it cannot be said that the bulky volume which forms their sixth Report does not, in one sense at least, begin at the beginning of the matter. The area covered by the inquiry of the Commission has been enormously extended since that body was first constituted. It may be considered unfortunate that the primary question on which the Commission was designed to throw light has been somewhat obscured by mixing it up with a far wider inquiry into the whole water-supply of the country. To this we may in some degree attribute the slow progress of defensive legislation, and the lamentable fate of last year's Bill for preventing the pollution of rivers. A clear and business-like engineer's report on the subject of that pollution might long since have been completed, and no excuse would then have been left for legislative inaction. As it is, however, we must take comfort from a discussion of the entire subject of water-supply, and an accumulation of information of which sanitary engineers will be able to make use.

The great feature of the present Report is the chemical analysis, not only of water suspected of sewage or manufacturing contamination, but of water wherever found. Not only streams, springs and wells, lakes, inland seas, and oceans, but even rain, hail, and dew have had to submit to analytical investigation. As far as the pollution of rivers is concerned, this is beginning at the beginning with a witness.

It is not the first time that we have mentioned the fact that a rainfall of ½ in. over the area of England yields a quantity of water equal to the supply of fifty tons per head for every soul of the population. As the total average rainfall, in ordinary years, is rated at about 36 in., we thus require about 1 per cent. of what Heaven sends us for domestic use. Most householders are aware that by extremely simple contrivances they can collect much of the water that falls on the roofs of their premises; and that when no artificial supply is delivered to them, they may thus economise labour in the use of pumps and wells. They are also aware that water thus collected is admirable for some purposes, and disagreeable for others. For washing it is good; for drinking it is detestable. It is also no matter of novelty to be told that the rainwater thus collected in butts or tanks varies in its purity according to locality. The water-butt of a cottage on Exmoor contains a very different sort of fluid from the tank of a house in the City. London rainwater, we all know, is particularly abominable, black to the eye, as well as sulphurous, or otherwise obnoxious to the taste. It hardly needed, we should have imagined, the construction of a leaden rain-collector, of the area of the thousandth part of an acre, upon Mr. Lawes's experimental farm, near St. Alban's, to prove that water which has washed the whole atmospheric stratum reaching to the clouds must contain an appreciable amount of impurity. It is, of course, satisfactory to have statistical returns on these points. The Commission have had samples of rainwater, collected in different localities, analysed. Stored rain-water, as might have been fully expected, proves often to be badly polluted. Out of eight samples analysed, but one was fit for domestic use. Even in cases where rain has been collected upon specially cleaned surfaces, and kept in properly cleaned receptacles, at a distance from any great cities, the organic pollution exceeds that of water obtained from springs or deep wells. It must not, however, be forgotten that the locality of such springs or wells is a matter of as much importance as that of the rain-water receptacles. The failure of even the recent abnormal rainfall to raise the volume of streams issuing from certain permeable basins, such as the green sand, to anything at all corresponding to the area of the water-shed which they apparently drain, shows how considerable is the subterranean flow through such *strata*. That such underground drainage should not meet with and carry off sewage and sinkage will be an exception, rather than a rule. The well, therefore, however deep, requires to be watched as carefully as the water-butt.

The Commissioners have tabulated the results of the analysis of no fewer than 1,274 samples of water, collected under the most widely different conditions. Here, again, their labour must be regarded as theoretical and philosophical, rather than as practical; as that of the chemist, rather than of the engineer. It is very well for us to know that the water of the Mediterranean is much fuller of solid impurities than is that of the tidal ocean that washes our own coasts. But that knowledge is hardly necessary for guidance as to the protection of our rivers. In fact, we rather suspect that the Commissioners have allowed a herring to be drawn across the track of the game which they were organised to pursue. We much fear that the inference that some people will draw from the analytic condemnation of rainwater, from the impurity ascribed to all sources of supply except deep wells and springs, and from the admission of the state in which most of our great lines of river-drainage now are, or are asserted to be, will be to argue that it is no use to attempt to make anything of a bad job; that we must leave the rivers to take their chance; and that we must look to the sinking of a number of artesian wells over the country as the future source of the supply of our cities and towns. We can only say that this argument proves too much, and that investigation of the under-current which accompanies the visible flow of such rivers as the Wey and the Mole towards the Thames basin is likely to reveal quite as much elementary pollution, on its road to the great reservoir under the London clay, as the rivers in question, with any decent care, would convey to the water of Thames itself.

It will not do to theorise on such points. The collection and analysis of rainwater from Cornwall, and of seawater from the Ionian Sea, is a charming pursuit. We rejoice to have these things placed within our reach, as we rejoice to have the analysis of Parian marble to compare with that of the marble of Pentelicus. But we confess to a little impatience at being presented with all this elegant and abstract information, when we want to stop pestilence from our streams. We know, without need of any Royal Commission, that we depend on the skies for every drop of water that we drink. We know that this water is most suitable for our wants when it falls upon certain soils, percolates their substance, and is caught as again it issues from the earth. If these pure and limpid springs are allowed to follow the course provided by Nature, and to form rivers, flowing beneath the open sky, and aërated by free leaps over pebbles, and by the dashing of the breeze which accompanies a flow over a gentle slope, we have the best source of drinking-water. That source we have suffered to be polluted in a shameful manner. If we are told that our streams have become so bad, that we must give them up as a bad job, and draw upon the subterranean rivers for supply, we reply that we have but little certitude that the latter will thus long remain purer than the former. In one case we can see the evil. In the other it is very difficult to do so. In one case we have certain known elements to deal with. We have the aid of the oxygen of the atmosphere, and of the direct rays of the sun. In the other case we have a constant succession of new chemical elements which the underground stream may take up in its course; we have a certain amount of sewage pollution from all the country districts; and we have many of the evils which attend on the artificial storing of water under cover and in the dark. There is no use in pretending that such a change is likely to prove a permanent sanitary gain. We must look our danger in the face. We must stop the source of pollution,—not allow it to take one channel, while we help ourselves to water from a neighbouring one. There can be little doubt that all those who have a vested interest in throwing poison into our rivers and streams will endeavour to draw support and countenance from this part of the Report of the Commissioners. These gentlemen seem to us to resemble that most dangerous of all

friends, the loquacious witness, who, in his eagerness to tell every incident that he thinks may enlighten the jury, and thus serve his cause, exposes himself to a keen cross-examiner, who makes use of his open-mouthed admissions to confuse the case which the witness laboured to support. We apprehend that the true function of a River Pollution Commission was a simple one. It was to ascertain the state of our rivers, and the causes of any bad features of their condition. The mode of preventing such mischief should have been an Administrative project, submitted to Parliament, based on the facts thus collected and tabulated. It is a most unfortunate thing that so simple and practical a line should not have been laid down and adhered to. The Commissioners will, no doubt, urge that from time to time their instructions were modified or their powers extended. But we know that, as matter of fact, such extensions of area are almost always due to the application of the persons charged with the inquiry. We are glad to have information on every element of the great water supply question. But one thing at a time. The increasing pollution of our rivers is a crying evil. It is monthly increasing in magnitude. It requires a vigorous check. No device could there have been more subtle,—if it were a device, and not a mere case of drifting,—than a recommendation, whether express or implied, to make this primary duty a constituent part of a vast scheme which it will require a quarter of a century to discuss. In fact, an implied necessity of this kind is far more objectionable than an open proposal. Every one would understand what the latter meant. But as it is, how many men will shake their heads and say,—"Ah! it is not so simple a question! It seems that they cannot purify our rivers, do what they will. Rivers are made of rain; and the Commissioners have discovered by analysis that stored rain-water is unfit for human consumption. Excremental dust is suspended in the air. Rain is full of excrementitious matter. It is full of zymotic germs. It is laden with products of animal and vegetable decay and putrefaction. In a tumbler of water we swallow as much impurity as would enter our nostrils from the air in more than a week. The Commissioners say that the rain-water at Greaseley turns out to be sewage. What a terrible discovery! Better leave the rivers alone; keep as far from their banks as possible, and drink nothing but Seltzer water. Or, if that cannot be done, have water-butts for washing, and revert to the old plan of wells for drinking purposes. Only every well must pass through an impervious into a pervious stratum. It will not, however, be very generally necessary to have wells more than 1,000 ft. or 1,500 ft. deep"! We do not think this is much of an exaggeration of the inferences that some people will be likely to draw from the Report, with one exception. That is, that the depth of the wells to which we are to be driven has not as yet been brought upon the *tapis*.

As to the influence of soil on the character of water, indeed, we are furnished with much valuable information. The geology of a district controls the quality, more than even the quantity, of its water supply. Various compounds of lime and magnesia with carbonic and even with sulphuric acids form soluble salts, which water readily takes up in its passage through *strata* containing those elements. These salts are those which chiefly render water hard. The calcareous *strata* form a large portion of the area of Great Britain. The upper and under chalk extend over a well-defined district. All limestone, dolomite, and selenitic rocks harden the water. Where much soluble saline matter occurs, the water soon takes it up. The destruction of organic impurities is effected by the filtration of water through porous soil. But in the course of such filtration, through the upper chalk for example, organic is only exchanged for inorganic foreign matter; and as the water becomes fitter to drink, it becomes less fit for other domestic purposes.

Regarded not from the engineering, but from the purely scientific, point of view, the information afforded by the Report as to the analyses of sea water has great interest. We are in the habit of considering that water, in the process of evaporation, leaves behind it all foreign matter. In artifical evaporation this is so far the case that potable water, as is well known, is distilled from sea water. But the Report refers to the carrying back to the land of considerable quantities of saline matter by the efficacy of sea breezes. The senses, indeed, inform us that such is the case. At how great a distance inland, in a good breeze, may we not scent the sea? The analyses of rainwater show that the amount of salt that thus returns to shore is appreciable. Organic matter, again, is much more abundant in sea water than in rain water, even when the latter is considerably polluted. Not only from various points along our own shores, but from the surface of the ocean, as well as from great depths in other parts of the world, samples have been collected and compared. The results of the scientific cruise of H.M. ship *Porcupine* have been pressed into the service. The proportions of organic matter found vary not only according to place, but according to time. Those collected at different dates from the same locality (off Worthing, for example) differ very much. The inference is that much of this matter is held in suspension rather than in solution. Further, while the suspended organic contents of our rivers consist of dead matter, that of the ocean is said to be living! Minute gelatinous beings, of microscopic proportions, inseparable from their native element by filtration, have their home in the water of the sea. Those who have seen the bright lines of phosphorescent light that mark the breaking of the Tuscan or of the Ionian Sea upon the shore by night, or who have watched, as a thunder-storm rolled down from the Apennines, how each flash of lightning from the sky was responded to by a phosphorescent shimmer from the sea, will be fully prepared to agree with this estimate of the condition of the organic contents contained in sea water. And a very beautiful proof of the theory is deducible from the fact that where, as in the neighbourhood of Aberystwith, waters containing poisonous solutions of lead are poured into the sea, the organic matter found in the latter is at a minimum. The fisheries suffer from this cause. It is curious to see one poison thus destroy another. But of the two the mineral contamination is by far the most hostile to animal life.

The Commissioners return to the subject of the slow rate at which self-purification takes place in the flow of rivers. We are told that instead of a flow of ten or twelve miles being enough to oxidise sewage diluted with twenty times its bulk of water, a course of fourteen or fifteen times that distance is insufficient to destroy two-thirds of the poison. The analyses of the Commission have not been such as to enable them to say at what distance, or after how much dilution, water once contaminated with sewage may be regarded as restored to purity. It is possible to make use of this statement in two ways. The safest and most natural is that which we have always advocated. We are not ill content, for the moment, to accept the doubt thus raised. But the inference we draw is, that it is absolutely necessary to prevent the streams from being polluted with sewage in the first instance. A glance at the numeric features of the case presents some important results.

Dr. Parkes's calculations give the average amount of 68 lb. of solid matter as the annual product of each unit of the population. Of this weight, 52 per cent.,—say 35 lb.,—consists of albuminous matter, which is not only incapable of assimilation by vegetation, but is a constant source of danger. It is indispensable that this matter should be destroyed by oxidation. This is effected either by the liberation of free oxygen in contact with the fluid containing the albumen, as is done by Condy's fluid; by filtration, as at Swansea; by agricultural filtration, as at Croydon; or by application of a high temperature, as by General Scott's process. By each of these different methods the same result is attained,—the matter is oxydised.

One part by weight of this organic matter in 100,000 parts; two parts of organic carbon, or of any metal, except calcium, magnesium, potassium, and sodium; or three parts of organic nitrogen, or of any dry mineral substance; will render water polluted, according to the Report of the River Pollution Commission. The organic contents of the sewage per unit of population will therefore be capable of contaminating 1,562 tons of water. We may take the mineral elements, in round numbers, at half that value, and rate the annual power of pollution per unit of the population at 2,350 tons of water. We have before seen that 50 tons of water per head is equal to one-third of an inch of rainfall over the entire area of England. This gives a ratio of 46 to 1. That is to say, that the sewage of the entire population, if allowed to sink into underground reservoirs of water, is capable of polluting from 15 in. to 16 in. of rainfall, being the total rainfall of a great zone of the country. In a little more than a century, if population keeps up its normal rate of increase, the sewage, left to itself, would be enough to poison the entire rainfall of England.

We must remember, however, that the distribution of population, and that of rainfall, are regulated by different laws. In some cases, where the population is most dense, the rainfall is the lightest. In the water-shed of the Thames, for instance, it is occasionally little over 16 in. But the population in this district is in a ratio to the area of double that of the average of the country. Thus, the sewage produced within this water-shed is enough (if allowed to soak into the sources of supply) to poison the whole annual supply of that water-shed to double the intensity declared to be dangerous. How soon that degree of contamination may be removed by natural causes, we are not in a position to say. When once diluted with a large quantity of water, it becomes very difficult to oxidise either the organic or the inorganic poison. We require to expose the fluid containing it to free oxygen that it can take up. We do that by filtration or other means, but it requires to be done in the first instance. As we dilute the poison we render it more difficult of direct neutralisation.

It must be remembered, however, that to compare averages is only a preliminary step in a scientific investigation. The last few days have shown us how absolutely capricious is the distribution of our rainfall. We have seen the average rain of two months descend, in more than one instance, where rain-gauges are kept, within twenty-four hours. These great flushes are balanced by great droughts. In the former case the water escapes to the sea in a short time. In the latter, we have a reduced quantity left to dilute the poison of which we speak. Again, there are local limitations of water storage within the bounds of every great water-shed area. Thus, it is clear that, in speaking of wells and springs, there are many places in the valley of the Thames where, in an exceptionally dry season, we have statistical reasons for expecting the outbreak of enteric fever from sewer pollution of the springs.

We do not bring forward this plain apposition of simple figures for the purpose of raising alarm. But we confess to being unable to contemplate them without some uneasiness. A matter is so much more tangible when brought to the balance, even if it be but from a very small sample that the weight of a mass is calculated. Our reason for urging our readers to make their own calculations in check of ours is this. We consider the idea of leaving the rivers to take their chance, while we seek our drinking-water elsewhere, is a mischievous and false idea. We have no doubt that a very strong interest will not only urge the adoption of this idea in the next Session of Parliament, but will (fairly or unfairly) seek to draw arguments from the Report of the River Pollution Commissioners for so doing. Now what these figures show is, that there will be no safety in this course. We can leave nothing, in our dense state of population, to the unassisted operations of Nature. If we allow our rivers to be poisoned, there is the probability in some places, and the certainty in others, that we shall poison our subterranean water supply at the same time. The very irregularity of the geological structure of the country, while it diminishes the danger in some cases, intensifies it in others. The valleys of the Wey and the Mole, which we above cited, are cases in point. What becomes of the sewage of Woking, of Guildford, of Godalming, of all the towns on the various areas of pervious soil lying in the basins partly drained by these rivers? It is tolerably certain what becomes of it. It sinks through the porous soil to the subterranean water flow. No doubt it may be to some extent oxidised in its way, but how much we do not know. We know that when water was taken, years ago, comparatively near the surface, at Guildford, for the supply of the town, fever was very prevalent. Very much is gained by depth, but at the same time the power of inspection may be lost, while an accumulation of mischief may be going on.

We must therefore look to chemists to do something more than give us analyses of the water of the Mediterranean and of the Arctic Regions. They must help us to deal with the sewage question, as a matter of danger to be overcome by science. We are not undervaluing the wonderful chemical power of the earth itself. But we must know what we are doing. We must not think that all is right and safe if we

leave rivers to become channels of poison, and resort to deep wells. No one can doubt that this would be an engineering blunder of great magnitude. It would substitute steam power for the natural action of gravitation for the greater part of our water supply. It would be a tangible addition to our water-rates,—a permanent pressure on the cost of life. What we wish to show is that it may turn out a chemical blunder also. At all events, we come to the conclusion, whether it accord with, or be in spite of, the inner conviction of the River Pollution Commissioners, that every fact which they have collected, intelligently regarded, shows that there should be no time lost in preventing the conversion of the chief features of the beauty and of the health of the country into open and unmitigated sewers.

A NEW DUTCH PROVINCE.

IT has been said with truth that peaceful conquests are the best, and the best of all that have lately come to our knowledge is that which the kingdom of the Netherlands is intending to make. The Dutch are verily going to take Holland; they propose laying dry the Zuyder-Zee, thus delivering it from the grasp of the ocean, and adding another part to their country, which they are truly said to have "built up." In twelve, sixteen, or at most twenty years, if the undertaking is successful, the kingdom will be richer by another province of about 750 square miles, and "our dear little country," as the Dutch fondly love to call their fatherland, will be enlarged by nearly one-twentieth.

This is certainly a grand undertaking for such a small country, but the Dutch are well prepared for it. Since the earliest times they have been constantly at war with the ocean, and if they had not so bravely resisted, it would have fared with them as badly as with the Friesians, who in East Friesland, as well as in the North Friesian islands, have lost by fearful storm floods a great part of their old land, with many flourishing villages and many thousands of inhabitants. The Dutch, on the contrary, have wrested from the watery element, by dykes and sluices, a considerable portion of their fertile soil, almost half of which lies below the level of the sea. This contest has not always been carried on without loss. The present Zuyder-Zee was, at the time of the Romans, terra firma. There was then in that district only an inland lake, Lacus Flevo, with an outlet into the sea, called Flevum. The lake degenerated by degrees into a morass, and in 1282 the waters of the North Sea swallowed up the whole marshy flat. This Zuyder-Zee is very shallow; beside deep channels of 15 ft. to 20 ft. deep extend large sand-banks with a depth of water over them of only 3 ft. to 4 ft. Such a sand-bank stretches almost uninterruptedly from Enkhuizen, in North Holland, to Kampen, in Overyssel, at the mouth of the Yssel. This circumstance gave rise to the idea of damming off the southern portion of the Zuyder-Zee by a gigantic dyke, to be constructed in two sections, one extending from Enkhuizen to the little island of Urk, and the other from the latter to Kampen. A plan of such dimensions would have never been matured if the Dutch had not already formerly been successful in undertakings of this nature on a smaller scale. The draining off of the Lake of Haarlem is a case in point; it was effected in thirteen years (1840 to 1853), at a cost of over 750,000*l.*, but it gave in return a tract of fertile land of 100 square miles, peopled in 1860 by over 7,000 inhabitants. The experience then gained was again practically applied in laying dry the Y, the river of Amsterdam, an undertaking completed in 1872. And now the Waterstaat of Holland, which probably includes the best nautical engineers of the world, proposes acquiring for the King of the Netherlands a whole province. Already in 1849 M. van Diggelen had prepared a scheme for laying dry the Zuyder-Zee, but it was found impracticable. In 1865, M. Rochussen, formerly governor-general of Dutch East India, a man of great enterprise, caused M. Beyerinck, who had directed the works of Haarlem, to prepare a plan confining itself to the draining of the southern portion of the Zuyder-Zee. The examination of its bottom proved very satisfactory. It is now known that nearly everywhere it consists of the most fertile soil, only waiting for deliverance. The Minister of the Interior, M. Heemskerk, then took the matter in hand, by appointing a committee consisting of eleven members of the Waterstaat, a strong majority of which, in April, 1873, declared itself in favour of the plan, and pointed out its advantages. Public opinion in Holland was roused by this declaration. In September of the same year, the king, in the speech from the throne, spoke favourably of the undertaking, and the States-General, in their reply, demanded the immediate commencement of operations. The chambers have voted a sum necessary for the completion of the preliminary works, and everything leads to the expectation that the carrying out of the great work will be actively proceeded with.

Naturally great difficulties have to be overcome. It is no child's play to construct, from Enkhuizen to Kampen, a dyke over 160 ft. broad at its base, rising 26 ft. above the level of the sea, and having a length of nearly twenty-five miles. But the bottom of the sea is favourable, consisting of soil capable, as experience has shown, of supporting the heaviest weights. When this principal dam is finished, the whole area will have to be partitioned off into squares, and the water pumped out by degrees and conducted by great canals to be made into the sea. The most important of those canals will lead from Enkhuizen to Amsterdam, and auxiliary canals will connect Hoorn, Eidam, and other small places with the ocean. It might be thought that by thus laying dry the great inland lake the small towns situated at its borders would lose. But this is not the case; for the Zuyder-Zee is so shallow, and so dangerous and almost useless for shipping, that this inland traffic is of too insignificant a nature. Most of the formerly flourishing towns on the shores of the Zuyder-Zee have declined to such an extent that a lately published book treating of them bore the title, "The Dead Towns of the Zuyder-Zee." The remaining channels to be left will serve much better than hitherto as a means of communication with the sea. It is calculated that over 470,000 acres of land will be reclaimed, of which over 370,000 acres are of the most fertile arable soil. But the expense will not be inconsiderable: it is estimated at 9,600,000*l.*; and if we consider that the work may take sixteen years or more, a considerable sum must be added as interest. The works will, no doubt, be carried on by the State, as the Lake of Haarlem was drained at Government expense. Complaints were rife at that time as to the slowness with which operations were proceeding, and the laying dry of the Y was given to a private company, the Government solely guaranteeing 4 per cent. interest. The draining of the Zuyder-Zee, however, is considered a work of too important a nature to leave it to private enterprise, and the State should surely keep the direction in its own hands when a whole province is at stake.

The *Cologne Gazette*, in welcoming the undertaking, says that it is glad to see the small, brave, liberty-loving, closely related nation of the Netherlanders, which formerly was distinguished by great enterprises, while latterly it seemed to have become somewhat sluggish, entering upon a work of such vast dimensions, and heartily wishes the Dutch people success. The *Gazette* takes pains to add that "Germany does not envy them their well-earned prosperity, and is far removed from harbouring those foolish and criminal plans of conquest against the Dutch of which she has been sometimes suspected by them. Actuated by this groundless fear, they have thrown up many small and almost useless fortifications; much more useful and fruitful of results will be the expense for the draining of the Zuyder-Zee."

NEW DISCOVERIES IN EGYPT.

TWENTY-FIVE years ago, a French expedition, similar to that which was made famous in the last century, undertook a fresh exploration of Egypt, and its first result was the discovery of the buried temples at Serapium. This took place in 1851. Since then the work of research has been carried on without intermission, and is now so far complete that very large spaces of subterranean Egypt have been sketched and described; and, accordingly, the world will soon be in possession of the details thus acquired. Meanwhile, an abstract, drawn up for the use of the Academy, may not be without its interest. Two thousand peasants were employed at Memphis, Thebes, Abydos, and Edfou; but they failed, for a long time, to decipher the text partly laid bare, in gigantic characters of stone, by Champollion. Strictly speaking, the scientific examination of these Egyptian monuments dates no farther back than slightly more than fifty years; when Europe was first taught to read the hieroglyphic language of the Pharaohs. The recent labours, however, of M. Mariette and his companions, have opened a quarry of investigation altogether unexpected and surprising. They were divided into two periods; one beginning in 1854, and another in 1858, which continues to this day. The first brought to light the ancient Serapium and the true Memphis, 7,000 relics of which are accumulated in the Louvre; the second laid bare thirty beds of inconceivably curious riches, which are, at length, catalogued and classed. They are so many in number as to defy, within moderate limits, any description; yet their general value may, perhaps, be indicated. M. Mariette arrived in Egypt in the autumn of 1850; he left Cairo, as he said, to spend a few days in the desert, and he stayed in the desert three years. His first endeavours were to examine the mighty burial-ground of Memphis, and to unlock the mysteries lying beneath it. This is a necropolis situated between the Nile and the hills of Libya, the Pyramids being all in sight, and here the inquiry commenced. To begin with, a plan was drawn of the entire cemetery, and an attempt made to arrange its monuments in chronological order. While this task was in course of accomplishment, various circumstances occurred. A stone, mystically engraved, led to the digging up of a sphynx, composed of a perfectly white stone, uninjured by ages of burial in the sand. Here was the key to an underground labyrinth which, day by day, extended itself as the explorer advanced. The clue, in fact, had been found, and nothing more than means were needed to reach, through a range of sphynxes, the Tomb of Apis, long ascertained to be far distant from his Temple, in the hypæthral Memphis itself, and long ago destroyed by Egyptian barbarism to be used up as building materials for new suburbs of Cairo. The god was supposed thus to have two abodes,—a temple and a tomb. With twenty stout fellows to help him, armed with pickaxes and spades, the Frenchman, on the very next day, commenced his search for the sanctuary; a second sphynx was unearthed; then a third; and so forth, until twenty-one had been recovered from their sandy graves. At this point, a sudden turn of the line took place, and the excavation became deeper and deeper, and more difficult, from hour to hour. After two months of unremitting toil, the 134th paradox in stone was once more given up to the light of Heaven, and there the procession ceased. In front, to the right and to the left, nothing further could be traced. Still, perseverance solved the problem. A considerable way off the scent was resumed, and, by a sharp bend, the excavators came upon a spacious subterranean court, beautifully paved, intersected by a double row of sphynxes, but Egyptian in little else. It was simply a hemicycle, adorned with statues of Plato, Lycurgus, Sophocles, and Pindar, whose effigies appeared to forbid all further advance. Nevertheless, the progress of the explorer was not stayed. A little temple, evidently of Egypt, and stamped with an approximately intelligible date, served as a finger-post, and its hint was taken. The bull image and the lunar disc now became more frequent, and the discoverers were full of heart and hope, when the signs were lost again. The road, it seemed, led nowhere. But it was remembered that the Egyptians were accustomed thus to mask the approaches to their shrines, through a jealous fear of their desecration by strangers, and the pursuit was accordingly pushed on.

Nothing in the narratives of Mr. Layard will possess a deeper fascination than this, when it is given in its fulness to the world. Here was the literal Worship of Death in its most plain and perfect form. The real grave had yet to be reached, but every wall, every block, was painted in honour of the corpse that, obviously, had lain embalmed not very far off. In every direction, blind passages were hit upon, like those in a maze; and a large sum of money was expended upon these abortive endeavours. Nevertheless, the work of excavation went forward. Two additional lines of wall were disinterred; then two other little temples; next, various exquisite fragments of Grecian sculpture; afterwards, a three-headed dog, a horse, a lion, and a panther; but no inscriptions, no story written on the stones. At length, the threshold of the Serapium itself was struck by the Arab pickaxe, and the explorers were rewarded. Not, however, without many a disappointment and check; their labourers ran away; their tents were blown

down; but these are incidents common to all such adventurers. Five hundred monuments of the remote past had been exhumed, and every fresh shaft sunk led to new discoveries,—among them a chamber, hollowed in the solid rock, without a tinge of colour on its floor, roof, or walls, or the outline of a tomb, or the faintest indication of any particular purpose, yet so secretly contrived as if it had hidden the mysteries of a thousand years. The interior obscurities of the Pyramids themselves are not more perplexing. Thence, a steep incline led to the portal of the tomb, covered over with inscriptions, and opening upon a wide and lofty gallery, without a glimpse of natural light. Here, then, in countless chambers, all hollowed in the rock, lay the sarcophagi of Apis; the walls enriched with sculpture and hieroglyphics, and in all directions unexplored corridors leading away to unexplored sepulchres. These were of a single pattern; but not far off were others, less deeply engulfed in the sand, each composed of two rock-hewn rooms and a staircase. The great tomb, however, eclipsed in interest the whole of these put together. Its main gallery is nearly 400 yards, or not far from a quarter of a mile in length; on both sides open the chambers of the dead, each containing a monolithic sarcophagus, with a ponderous lid; all decorated, moreover, with human images; and every one supposed, when once the rites of sepulture had been concluded, to be closed for ever against the sight of men. Of some the massive doors were thrown down by an earthquake; of others they were forced open by the profane curiosity of 1874. They have been examined, in succession, from the rough and clumsy work of the earliest periods, to the rich and elaborate sculpture of the latest, and their original sanctity exists no more. It is noticeable that, whatever the epoch, the sarcophagi are of about the same size; invariably in granite and monolithic, approaching to 10 ft. in height and 13 ft. in length, and leaving us to wonder how such bulks could have been transported from the quarries among the hills, across this breadth of desert, and deposited in receptacles so far below the surface. Yet another secret remained to be laid bare. At the end of the gallery ran a wall of masonry. The sound told that it was hollow, and tradition said that it concealed a vast golden treasure. In the result were found Pharaonic relics in marvellous variety, including vases, lamps, semi-human figures, masks, and urns assumed to be cinerary. The whole of these objects, nearly 3,000 in number, have been secured for France, as was just, and the total is continually increasing. The farther the excavations went, the more abundantly were they rewarded; but, in some directions, the subterranean architects would appear to have been interrupted in their task, since columns and tablets, evidently intended for inscriptions, were left completely blank. This fact suggested a somewhat astonishing idea to the French explorer. He took up his abode, for nights together, in these sepulchral halls, and, with the assistance of lamp-black, finished what he supposed the artists of the Fourth Dynasty, and the worshippers of Apis, to have begun. That was not all. He took down the inscriptions, then sufficiently toned to look like antiquity, and it was not difficult to palm them off, as originals, upon the Government at Cairo. Later on, with fresh funds, having completed the exhumation of the Serapium, though compelled to leave the sarcophagi in their places, as too heavy for transport, he had the mortification of seeing the Court of Sculpture, the Sphynxes' Avenue, the smaller isolated tombs, all the excavations, indeed, in the neighbourhood of the principal historic tomb, overwhelmed by the Libyan sands, beneath which they are hidden once more,—perhaps for ever, now,—sands scarcely less addicted to find a level for themselves than is water. Those who originally hollowed the rocks took care to encircle them by gigantic dykes and trenches, which resisted, long enough for them, at all events, the encroachments of the desert. Of all this record, only two fragments have publicly appeared; the one, a sketch of the works as originally designed; the other, a partial inventory of the antiquities transmitted, from the bowels of the desert, to Paris. In order to understand more, we have to consult the unpublished MSS. First among these is a series of plans, technical explanations, chromo-lithographs, imperfectly executed, and photographs from the museum at Boulak, which alone can give a just idea of the artistic and archæological results obtained. It is entitled, "Remarks upon the sixty-four Images of Apis found in the Excavations at Serapium." Its publication was never completed, even in the fragmentary form, and copies are exceedingly rare. The second was styled "A Selection of Monumental Discoveries made during the Exhumation of Serapium"; and the third, a "Memoir on the Mother of Apis." This may suffice to exhibit the literature that has grown out of the French researches among the graves of the sacred bulls. It may be of interest now to inquire into the style and epoch of the arts which they illustrate. From the most antique of all these tombs, articles of enamel and of gold were picked up, where not a remnant of that which might once have been flesh or bone could be detected; figures of man-headed horses, and others, not less exquisitely wrought than they might have been by the chisel of Cellini; and a thousand different forms, all, however, ostentatiously dedicated to the religious idea, and impressed with the rigour of an inflexible uniformity. The sacred suggestion is universally prevalent. Nothing is to change,—nothing to improve,—all is to be formal. The granite-worker of old Egypt was prohibited alike from deteriorating and from developing. Yet, a kind of unconscious superiority did manifest itself, from age to age, if not in the forms, at all events, in the manipulation, visible throughout these buried cities, wherein the dead have buried their dead indeed,—this most archaic of all unfolded mysteries, amidst which there are so many strange surprises, suggesting a comparatively modern fancy. Thus, a scribe tracing characters on a tablet; a man's image, in petrified cedar; heads and busts which might be accepted as models by nineteenth-century sculptors; a weasel and a lion in stone; a ring, a crown, and a dagger; a cross and a sceptre, which, until quite recently, conveyed no definite significance to the mind of even M. Mariette himself. When, however, a few years ago, he had burrowed to the basements, not of the Sphynxes only, but also of the great Pyramids, he met with surprises at almost every step. He detected an amount of made-up work, so to speak, which had never before been so much as guessed at. In addition to this, there was brought to light,—and only the academicians of Paris have as yet been favoured with a full description of it—a building constructed entirely of rose-coloured granite, such as is to be met with in the quarries of Elephantina, the columns of which are monolithic, while the walls are composed of irregularly-shaped blocks, somewhat Cyclopean in their dimensions. But there is not an inscribed character or a painted fragment, to suggest the history of this edifice, which may possibly rank among the most primitive architectural antiquities of the world. It contains, deep sunken in a well, a statue in stone, to which none except a conjectural meaning can be assigned. From this point a line of research was drawn, including no fewer than thirty important excavations, still continuing to give up sarcophagi, to let the light into long-hidden chambers of the dead, and to present varieties of that which some have agreed to designate as "hollow sculptures," tinted with rich and, apparently, imperishable colours. The opinion is, though the grounds for it may be regarded as uncritical and fragile, that they date from long before the foundation of Thebes, whenever that event may have taken place. The result, at any rate, is conspicuous. These latest exhumations in Egypt mark a distinct series of differences in arts, and, still more, in manners. The one set exhibits funeral customs resembling those of an Irish wake; the newest brought to light illustrates a woe and a despair beyond the power of words to interpret; and yet they are in close conjunction with joyous scenes; water-parties; dances under the palms; singing groups; and similar passages leading man, as it were, from life to death through the labyrinth of this practical and solemn philosophy. We must not, perhaps, further anticipate the revelations which the French Layard has to make from the Egypt of Apis and the mummies; but they are many in number and wonderful in compass; and, as casting not a few cross and side-lights upon a hitherto-confused and distracted history, will be valuable beyond any common estimation. To the chronicles of art and archæology, again, they will add a chapter, the contents of which, even for the chosen Forty, are not yet sufficiently summed up to be satisfactorily indexed.

Bequest of Pictures to the Nation.—The late Mr. Wynn Ellis, whose death has just been announced, leaves his collection of paintings by the old masters to the National Gallery.

ARTISTIC DRAUGHTSMANSHIP.*

In this extraordinary era of development on which we are entering, I venture to give young Architecture, as represented by this Association, my candid opinion, for what it is worth,—that we are falling miserably behind the rest of the world in the scale of educational attainments. All honour, I say, is due to the public spirit of those young men large-minded enough to recognise some deficiency, and who attempted to meet it by the formation of this Association; but I venture to tell their brethren who have not backed them in their efforts, but who are aspiring to the profession, that a time is coming when young Irishmen will not go, as I am proud to say many have done in the past, to be first the able assistants of English architects, and ultimately successful competitors with the architects of the whole kingdom. Already it is beginning to be recognised that an architectural assistant "up to the time of the day" is not (or very rarely now) an article of native Irish manufacture. Architects in good practice see their own pupils ebb and flow, and none qualify as they did in *their* day to fill the assistant's chair in their master's office; and it is a matter of every-day experience for me to hear architects express their desire to import a thoroughly qualified assistant from London or elsewhere. I am rather glad of this on the whole. The gentlemen who have been, or may be, imported into our midst, will always have a cordial Irish welcome, and I would rejoice if this portentous movement would open the eyes of our architectectural youth to the fact that it means something serious for their future prospects of being successful men.

Time at disposal will not permit me to enter to-night on the constructive branch of the profession, and our backwardness in this, which would be a matter for not one but many discourses. I shall deal only with one detail of the fine-art side of our pursuits. I say that we are backward and deficient—wofully so for the time of day—in knowledge of styles, design, decorative art applied to architecture, and artistic skill in draughtsmanship, and to this last detail of study I shall confine my remarks. Other men elsewhere draw better than we do, and we should look to it. When I look at the amazing proficiency to which the rising generation of young Londoners have attained, chiefly under the fostering development of the London Architectural Association, and the superlative advantages for improvement which are to be had there, and so well taken advantage of, and when I look at the heavy disadvantages under which we labour, I confess I grow despondent about our future place in the race. I shall be told, perhaps, of what brave show has been made by our architects in past times; but I reply, past times did not dream of looking to the architect, such as he was understood to be but the other day, for such acquirements as are now looked for from him as a matter of course.

I would ask you to note an extraordinary fact illustrative of this development. For thirty years a great national scheme of art education as applied to manufactures has been in operation under the rule of South Kensington. That it must have effected great good for the country, on the whole, may be admitted, and what the country would be in the scale of art without some great attempt at such regeneration it is appalling to contemplate. It does not, however, amount to a libel to say that in the great and primary objects set forth—that of producing designers of art manufactures—the Kensington system has been a comparative failure.

It is a further remarkable fact that if we were to look into the origin of the design of some of the finest modern works—art-furniture, applied decoration to buildings and furniture of every sort, ceramic manufactures, textile fabrics, gold and silversmith's work, and work in the baser metals, stained-glass illumination, and even needlework and embroidery—we find the ablest, most practical, and vigorous of the army of designers are recruited, not from the leviathan manufactory of Kensington, but from knots of rising architects and their immediate associates; from a self-formed school which has arisen of itself in our midst. Again, nothing is now commoner in our picture exhibitions than to find architects straying into the painter's more legitimate field as exhibitors of landscape or figure subjects. Look at how much all this implies:

* From address, delivered at opening meeting of the Architectural Association of Ireland, November 25th, by Mr. Thomas Drew, R.H.A., President.

how much it indicates, not only of knowledge of architecture in its stricter sense, but of the decorative art of all times and nations, facility in drawing the human figure, knowledge of perspective, and mastery of the use of colour, and one must admit that the versatility of architects' study is indeed developed beyond what it once was.

When I say that we look in vain for proficiency in these modern accomplishments among our little school here in Dublin, I am only stating a melancholy fact. I am as painfully alive to the heavy disadvantages under which we labour in facilities for acquiring it as any man can be, and they are these which are no fault of ours; we do not enjoy the presence of innumerable great examples of architecture ever under our eyes. We do not possess in every hamlet, village, and country town some more or less glorious example, of Mediæval art more especially, to be studied and sketched, as does the more favoured Englishman. Farther removed from the great centres of wealth, we do not see daily the varied and vast employment of many materials and novel arts in building; we have not—and of this I take a right to make an Irish grievance and speak in just resentment of fault somewhere—any museum of art. Further, owing to our absence from the great sources of wealth and expenditure upon the present sumptuous surroundings of architecture unequalled in our history, we are not called on or stimulated to develop these more novel powers. So much for our misfortune, but how much now for our fault? Still would I cry with one of old, but with more justice,—"Ye are idle," "ye are idle." Ye have the wherewithal of some straw to make your bricks. We are all idle!

I put it to you, if you wanted to find a man to make you a good perspective drawing of an elaborate building, and to tint it or finish it in pen-and-ink, like an artist, where would you look for him? I put it, is this a creditable state of things?

To begin with,—for the ignorance of perspective prevalent among our students, there appears to me no manner of excuse whatever. Perspective I hold to be the simplest of accomplishments—an art the whole theory of which I maintain is capable of being acquired in one hour's learning, and practice of and dexterity in which, industry and exercise in it will surely bring. I am lost in amazement at the apathy and neglect that are widely shown in architects' offices by pupils in acquiring an item of knowledge so essential to their being worth anything either as designers or draughtsmen.

In acquiring the use of colouring and other elaboration of artistic drawings, I admit graver difficulties are with us, but by no means insuperable to willing minds. Instruction in art of this kind is not easily had in Dublin. There are not, to the best of my belief, any teachers of water-colour here who have directed their attention to the special kind of teaching we want; and, at the risk of bringing by my irreverence a house about my ears, I express my belief that, as an agency for artistic instruction of young architects, the Government School of Art at the Royal Dublin Society is a thorough delusion and a snare. While, perhaps, no other means of instruction is open of more practical efficacy, I would not say to our pupils,—avoid that institution and the "efficiency of the eminent masters" thereof, so frequently and appropriately mentioned in the inspiration of our newspapers. Drawing from the antique and the round, and any study of figure-drawing which a man can get, must be serviceable to him; but for the class of better educated youths who come to our offices, the School of Art Practical Geometry is waste of time, and an insult to their intelligence; its "perspective" is complicated, pedantic, and makes as much of a mountain as it can of a mole-hill of knowledge. Its exercises in mechanical drawing, in projection, and so forth, are so much sheer waste of time to the youth, who must acquire all this in a much more wholesome style in his master's office work.

Painting from still-life is going off the practically useful track, and the delineation and shading of cones, triangles, and other models—which I believe Government especially stimulate by "payment for results"—always appears to me a sad prostitution of time and talent. In the department of landscape painting, or use of water-colour in such a way as would be of benefit to the architect student, the School of Art is a failure and lamentable break-down.

That the objects of these schools are more diverted towards what may bear upon manufactures I am aware; but even in that point of view the total impotency of a "great school of art" in this department, and its ignoring of landscape painting and study from Nature out of doors, is a discredit to the system, and, further than the system can be accountable, to the intelligence of those who guide the school, and who appear to make no attempt to alleviate the deficiency. I complain the more strongly of this defect, as it is to this upas-tree of art-teaching that we owe the absence of independent professors of water-colour such as we want.

However, in discussing this disadvantage, I cannot accept it from our backward young artists as an excuse. There is much measure of remedy in our own hands. By patient study of some such works on the use of water-colour as Penley's, for instance; by constant attempts to use colour in copying good drawings and sketching out of doors, and by constant exhibition of these efforts to as many malevolent but competent critics as possible, I believe the student may be independent of the master to a great extent. As regards pen-and-ink etching he is at no disadvantage whatever. Thanks to the inestimable boon of photo-lithography we have all before us every day facsimiles of pen-work by the very ablest draughtsmen in the kingdom; and there are many works easily available, such as Johnston's "Early French," Street's "Brick and Marble Architecture," and, outside architecture, many publications of clever etching, in the study of which for himself any man may improve by practice in the use of the pen.

So urgent do I feel to be this question of improved draughtsmanship, that I would entreat of you,—and I wish it were possible by any words of mine to arouse some enthusiasm and energy about it among all the members present,—to consider whether we are not strong enough in numbers and resources to establish some special drawing-classes for ourselves, fitted to supply our special wants. It is by the establishment of such classes under the London Architectural Association that such a stimulus has been given among the younger members of that society to higher art training, with results I have referred to. I believe if we could obtain the names of a sufficient number of men who would co-operate, fix upon a sufficient scale of fees, and look about us, it would not be impossible for us to induce some competent artist to come among us, and take our classes in hand. I believe such a thing would be an invaluable benefit to ourselves, and not an unpromising opening for some artist wishing to undertake teaching.

The course which I would recommend would be some study of drawing the figure from the antique and from the life, both nude and draped. For such study as this there exists in the school of the Royal Hibernian Academy, free, gratis, and for nothing, and elsewhere in Dublin, every advantage that could be desired. The more special object of our class would be the practice of drawing in water-colour, of landscape, but with special direction of the skill acquired to representation of architectural subjects. The course of teaching might also embrace Perspective and drawing of Ornament applied to architecture, of different styles and schools, from the flat and the round.

For due edification of such classes, I would propose that we should form each year a small loan collection of architectural drawings,—say half a dozen or a dozen,—by the hands of the best known architectural artists, which would enable students to have for some time under their eyes the drawings of masters; and that in their delineation of picturesque architecture they might catch some inspiration from a Prout or a David Roberts, or in delineation of contemporary works of their own designs, they might "take wrinkles" from and aspire to emulate the handling of a drawing by a Waterhouse or a Lynn.

SCOURING THE RIVERS.

IN one respect, at least, the floods which are visiting us will prove themselves to be not an unmixed evil. Though the majority of our rivers are now raging torrents of more or less turbid water, spreading in all directions, and dealing havoc in their course, they will, when they have resumed their natural proportions, be all the better for the thorough washing and cleansing they have undergone. During the summer months, when there is generally little water passing down their channels, most of the rivers of this country are little better than dirty sewers. Abominations of all kinds, liquid and solid, are poured into them, and it needs an occasional storm to carry off the discoloured waters which too often are anything but a "sweet-smelling savour." Mines and factories, gas-works, and town-sewers, daily cast their filthy refuse into the nearest streams, whose beds are gradually choked up with the solid deposit, and whose waters are tinted various colours, and made more or less poisonous by the soluble matters which are dispersed throughout their length. Purple rivers, blue rivers, black rivers; rivers white like milk, rivers red like wine, rivers rivalling the Tiber in their yellowness, are the consequence; and pure water is difficult to procure in any English stream. So thick is the deposit, and so poisonous is the water in some instances, that when a flood has occurred, and the river has overflowed its banks, the submerged land has been totally destroyed for all agricultural purposes; the very grass and shrubs have been poisoned. Not long ago some ducks were poisoned by drinking in a river into which the refuse of a lead-mine had been cast; the crops of the unfortunate birds were opened, and the lives of one or two were saved. But human beings who happen to be poisoned cannot have their "crops cut open," and the chances are that any one drinking of such water once would not have an opportunity of doing so a second time. If it were not for occasional heavy falls of rain and a "fresh" in the stream, many rivers would become completely blocked, and so long as the present system of abusing them continues, we must be prepared to welcome frequent floods on account of the service they render in cleansing the natural watercourses, and relieving them of their noisome burdens. After the tremendous quantity of water which has been suddenly passed down the rivers, they will be for a time comparatively pure; but it would surely be better that, if such floodings of the country are to occur, it should be with pure water, instead of with poisonous mixtures, and though floods are of service in the way we have indicated, floods of pure water would be preferable.

THE LAST PROPOSAL AS TO LONDON BRIDGE.

THE most recent candidates for public approval of a design for increased accommodation on London Bridge are the well-known firm, Messrs. Brunlees & M'Kerrow, civil engineers, and, in conjunction with them, Mr. Valentine G. Bell. They claim for their plan that it will give increased accommodation to the traffic without interfering with the design, or increasing the load on the foundations, and that it is the only plan submitted, as yet, that combines these important advantages. It is stated that there will not be any construction that will be seen above the parapets of the bridge, and that the elevations will be left untouched. They also propose to give up the whole width of the bridge to the road traffic, but with the heavy and light traffic on different levels, and the foot-passenger traffic depressed, and in the centre of the bridge, instead of being at the sides, as now. It is proposed to have on each side of the bridge a roadway, 16 ft. 6 in. wide, and on about the present level. Between these roadways is a covered footway, 18 ft. wide, and 3 ft. 9 in. below the present roadway, with, over it, a roadway for light vehicular traffic. The heavy wagons will take on each side the lines next the parapets, and between these and the covered footway will be the lines for omnibuses and light vans. The cab and light carriage traffic will take as it does now the two centre lines, one in each direction upon the raised roadway, 6 ft. above the level of the proposed covered footway. The depression in the floor of the covered footway is to be obtained by removing the gravel and clay puddle, that add nothing to the strength of the structure, and interpose between the granite paving and the arches, and substituting for these materials a coating 3 in. thick of asphalte. The flooring of the covered way it is proposed to lay with encaustic tiles, and to line the side walls with the same, of ornamental pattern, to a height of 4 ft., above which the carriage-way for light traffic will be supported by ranges of dwarf ornamental columns, resting on the side walls of the covered way. The clear headway will be 8 ft., the upper open portion supplying light and ventilation. The floor of the light traffic road will be borne by longitudinal and transverse, rolled, wrought-iron girders, with arched iron plates riveted to the bottom flanges. These plates will be enamelled on

the under side, and form the ceiling of the covered colonnade. The space over the plates will be levelled up with concrete to 3 in. above the upper flange of the girders. The paving is proposed to be of wooden blocks bedded on sand. A centre row of columns is introduced to distribute more equally the weight of the upper roadway. These might be dispensed with by the introduction of an invert between the side-walls, which would involve a higher level for the road. The light-traffic roadway will have a footpath 3 ft. wide on each side, for the use of police-constables and others employed on the bridge. It is enclosed by a neat iron rail on each side, the uprights placed at greater distances than might be necessary for the side-boundary of a public footpath. This rail is the only portion of the new construction that can possibly be seen from the river above or below the bridge, and it is so slight that the obtuse visual angle of incidence is likely to make it invisible at the distance at which it may rise above the parapet in the line of sight. The entrances to the covered footways are by inclined planes and curved passages, from each side of the street at each end, the curves meeting at the entrance to the colonnade. The rise to the upper carriage-way is by a gradient not steeper than the existing road. The gradients of the inclined planes and curved entrances to the covered way are portions of 1 in 8, and 1 in 10. It is stated that the plan could be carried out with very little interference with the traffic; the approaches would be first constructed, and the work would be carried on from both ends under a temporary moveable platform provided for the passage of the traffic. It is stated that the cost of the work will not exceed 50,000*l*.

PROPOSED DESTRUCTION OF CÆSAR'S CAMP, WIMBLEDON.

WIMBLEDON AND PUTNEY-COMMON CONSERVATORS *v.* DIXON.

This was an appeal, in the Court of Appeal, on the 2nd inst., from a decision of the Master of the Rolls. The suit was for an injunction to restrain the defendant from carting building materials over the new road leading from Workhouse-lane across Wimbledon-common to the ancient earthwork called Cæsar's Camp, where the defendant was erecting a number of houses under a building agreement with a Mr. Drax, a freeholder. It was submitted that the defendant either had no right of way at all over the road in question, or, if he had, that it was a right of way for agricultural purposes only.

The Master of the Rolls said the defendant relied on public user, but he had only succeeded in showing that for a number of years people had been in the habit of leaving the high road at the National Schools and driving across the Common up to the gate of Cæsar's Camp, which appeared to be a favourite resort of the inhabitants of Wimbledon and the neighbourhood. Up to 1866, when the new road was staked out by Lord Spencer's orders, there was nothing which could be called a regular road across the Common, only a series of wheel-tracks, from which it was perfectly well settled that the law would not infer a right of way. Their Lordships affirmed the decree of the Court below, holding that the defendant had no right of way over the new road excepting for agricultural purposes. The injunction would, therefore, be made perpetual.

So long as this injunction is maintained, building operations can scarcely be carried on.

THE CADOGAN AND HANS-PLACE ESTATE.

The opening step to this new building speculation appears to have been taken, a tender for the formation of the road from Pont-street to Walton-street having been accepted. The following tenders were received,—Mr. John Ashdown, architect:—

Jackson & Shaw	£3,783	0	0
Nowell & Robson	3,689	0	0
Mowlem & Co.	3,500	0	0
Pearson (accepted)	3,420	0	0

THE HASTINGS TOWN-HALL.

The tenders for the proposed new Town-hall, adjoining the Recreation-ground at Hastings, were made known at the Council meeting on Friday. They were as follow:—

Willson Brothers	£36,420	0	0
Parks	34,300	0	0
Peto Brothers	33,850	0	0
Geary	31,750	0	0
Kempling	29,213	0	0
Adcock	28,210	0	0
Howell & Son	26,790	0	0

The tenders were divided to show cost of superstructure, foundations, and stone for interior work in lieu of plaster separately. Mr. Kempling showed the lowest estimate for superstructure, 19,679*l*.; and Howell & Son lowest for foundation, at 4,480*l*. Five of the tenders varied between 7,050*l*. and 7,980*l*. in the latter respect. The Council stipulated, in the premium awards, for a building to cost 18,000*l*., and allowed 2,000*l*. for foundations. The Building Committee made no recommendation, and no member offered a motion, so all the tenders are rejected. There was also read a letter from the solicitor to Mr. Heffer (who was awarded the second premium) asking if it was open to Mr. Heffer, as the plans of Mr. Jeffery and others were above the stipulated amount, to have his design estimated for, to show it could be carried out within the required amount. The Committee merely reported the fact, and Mr. John Wood (a builder) moved to pass to the next business. This being agreed to, there followed a prolonged discussion, in which Alderman Williams moved to rescind the resolution to build on the Recreation-ground site. In support of his motion he advocated the purchase of the Castle Hotel site. A memorial, signed by 500 ratepayers, in favour of that spot, was presented. Mr. Williams quoted figures to show that, instead of 20,000*l*., the Recreation-ground plan would cost 32,280*l*., whilst the Castle Hotel site would only cost 47,500*l*.; and a larger scheme, to take six adjoining houses, might be carried out for 76,000*l*. Several members spoke, the feeling being that the figures were under-estimated, and that a month's time ought to be given to consider the proposal before coming to a vote. No speaker gave approval to the scheme. At the termination of the discussion, it was decided to call a special meeting of the Council in Committee, and to adjourn the public decision for a month.

THE GOVERNMENT OF HASTINGS.

Sir,—Under the above heading, a letter, signed "A Sufferer," appeared recently in the *Builder*, calculated, if allowed to pass unchallenged, to inflict serious injury upon this growing and important watering-place.

Having spent all my life, now nearly "three-score years and ten," in this place, I may be presumed to know a little about it. I knew Hastings in its undrained, unpaved, and unlighted condition; when it had no public water-supply; when St. Leonards (the parish excepted) had no existence; and I say unhesitatingly that the letter in question is a gross libel upon the place, and consequently upon the people, more particularly upon the governing body, the Town Council.

I pass by the first paragraph in the letter, as simply "nonsense."

The second paragraph commences with the following:—"Hastings is very badly off for water, St. Leonards is little better off, and now the Hastings Council propose to deprive it of some of its too meagre supply." I deny that Hastings is badly off for water, or that the Council propose to deprive it of some of its supply. On the contrary, the Council have for years been extending the water-works. In or about 1869 they purchased the Eversfield Waterworks, which till then belonged to a private individual; they have recently purchased the St. Leonards Waterworks, and they are now engaged in extending and perfecting various portions of the water-supply.

In another paragraph the writer of this famous letter says, "The public voice is shut in a place like this upon all sanitary matters, however bad they may be. The Council know the universal fear; they wrap themselves up in the security that they find in the belief that no one will venture to speak out about the water as they have about the town-hall site." As an answer to this I enclose copies of three letters that I have at various times written (and these are not all that I have written) on sanitary matters. One of these you will see was addressed to the then mayor, the late Mr. Wm. Scrivens, on the subject of the water supply. For this letter I received the personal thanks of that gentleman, as well as the thanks of the Waterworks Committee. On another occasion I was particularly requested by the then mayor, the late Mr. W. Ginner, to draw attention to a fine spring that was found at the Gasworks in excavating for a new gas-holder. I wrote to one of the local papers, and in a short time I had the satisfaction of knowing that the spring was secured for the town. It now forms an important part of our waterworks.

Another paragraph commences thus:—"The same penny-wise-and-pound-foolish plan which prevails with a few will be the ruin of this borough; it is applied to all matters,—town-hall, water, roads, drains, &c. We have been tyrannised over by the Town Council." I for one do not approve of the Council in the matter of the town-hall: however, it is never too late to mend; but if they do not mend, I do not know that the ratepayers need cry about it.

Your correspondent complains of the roads. I do not deny that he has some ground of complaint; but the Town Council have ordered a steam-roller, and I have no doubt from the fact that, as a vessel lately discharged a cargo of broken Jersey granite for the Town Council, there will soon be some "proper material to roll in."

Next the drains are spoken of. I deny most emphatically that the drainage has been neglected. A very few years ago the sum of 26,000*l*. was expended in making an intercepting drain along the whole front of the town, and only a few weeks ago a Government inquiry was held for the purpose of borrowing money to drain a valley contiguous to Hastings; and I happen now to have plans in my possession for the drainage of other suburban districts, which is only waiting for the completion of the necessary preliminaries.

Your correspondent ascribes the effects of the late gale to the "penny-wise-and-pound-foolish policy of years since." He does not seem to know that for years the sea has been encroaching on the land all the way from Pevensey-level to Cliff's-end, and that thousands of pounds have been spent in erecting barriers to keep it back. Besides, are the Town Council responsible for the tremendous gale of wind that on that occasion blew *great guns* till and after the time of high-water, and high-water spring-tides, too?

It would have looked better, seeing that your correspondent has made such sweeping charges, if he had appended his name to his letter, as I do not care whether I offend the authorities or not by what I have written; and as I know it to be true I have no hesitation in signing my name to this. John Banks.

P.S.—Your correspondent mentions a narrow esplanade before the largest mansions. This portion of the borough has been in the hands of the Council only two years. It was before in the hands of a totally distinct body, hence the Council are not responsible for the narrow esplanade.

PARIS HOUSES.

We have much pleasure in printing a paper, in three divisions, describing the system of residence and mode of house construction in Paris, prepared by Mr. William H. White, architect, who has had good opportunities of studying both. An abstract only, entitled "How the Parisians Build a House in Flats," was read by the author at the last meeting of the Architectural Association, as noticed on another page.

The newspaper writers of more than one country who used to compare Louis Napoleon to Octavius Cæsar, had at least foundations strong enough to support a superstructure more solid than a compliment. If the latter was enabled to say that he had changed Rome from a city of brick into one of marble, the French courtier who declared that the Emperor had found Paris of plaster and would leave it of stone, told a truth which neither the friends nor detractors of the Second Empire seem to have even yet completely realised. It is not too much to assert that within the easy remembrance of men of thirty years of age the Paris of to-day,—the city as it is known to the traveller and man of fashion from every corner of the globe,—has been rebuilt. Indeed, the only portion of the capital which succeeded in resisting the Imperial laws of expropriation was the old Faubourg St. Germain,—the Grosvenor-square of France,—and soon after the Great Exhibition of 1867 the Faubourg had succumbed. But the re-arrangement and reconstruction of Paris as it is has been proceeding gradually since the great Revolution. Much of that which was achieved by Napoleon III. had been projected by his uncle, to whom the Parisians are indebted for extensive schemes of internal reform and public works of general utility; although even as late as the time of Louis Philippe the majority of the streets had no foot-pavements, and the kennel or gutter was in the middle of the roadway. In lighting as well as cleanliness the streets of the French capital were then far behind those of London. Some only were lighted by gas, and the common mode was by oil lamps supported on ropes swung across the street. These are still to be seen in some provincial towns and villages, and during the summer months when the moon is bright they are not lighted. It is incredible to hear that thirty years ago the Parisians envied the Londoners their large open squares, their lamp-posts, and their vestrymen! To those who know the two cities as they are now Macaulay's celebrated description of the English metropolis, in his chapter on the "State of England in 1685," appears an exaggerated eulogium; but when it was written, London, in all but its architecture, was a finer city than Paris.

It may not, perhaps, be inopportune to trace some of the conditions of life amongst the French which in the course of ages have led to different architectural combinations,—conditions which apply almost equally to this country. Before the end of the twelfth century all the arts and sciences which go to compose what is called architecture were in the hands exclusively of the religious orders; and all the different building trades lived within the domain of the cloister. After their emancipation from direct ecclesiastical control, and although architecture was begun to be practised by laymen, monastic traditions were nevertheless preserved. In the feudal palace there was a cloister, or a courtyard resembling it; a hall, like the monks' refectory; a huge kitchen, sometimes forming a separate building; a common dormitory; a residence for the lord and lady; a hostelry for strangers and guests; a chapel; with stables, cellars, granaries, and gardens, arranged in a precisely similar manner to that of the monasteries in which the trade corporations had acquired the art of building. As order and security developed, the habitations which had sprung up here and there

outside the walls of monasteries and fortresses increased, and became towns. The inhabitants, asserting their rights, even as early as the thirteenth century, eventually took upon themselves municipal responsibilities. Each family then resided in a house of its own, and the ambition of the citizen or burgess was to possess a gable facing the street. But it is probable that even in the artistic days of the Troubadours lodgings were let and houses divided. At Montreale (Yonne) there are, or lately were, two houses,* built in the early part of the thirteenth century, which, like semi-detached villas of the present day have a party-wall, but, unlike them, have only one staircase and two flights of stairs so arranged that neither occupant can meet,—each beginning to ascend at opposite ends, under his neighbour's first-floor landing. At Cordes (Tarn-et-Garonne) there is, or was, a superior kind of house,† with shops on the ground-story, which was built at the beginning of the fourteenth century. The owners of these shops probably lived elsewhere (or slept perhaps under the counter or swung in a hammock), as there was no communication between them and the upper part of the house, the shops simply opening into the street. If such a division of tenements was customary in the provinces, it is likely to have been known in the large cities like Paris. But in the Middle Ages, and long after the Classical Renaissance, sets of people lived in common, or were grouped under one head. Soldiers were always attached to the service of some nobleman, and lived within the walls of his residence or domain. Merchants' assistants and tradesmen's apprentices boarded and lodged with their masters. The youth of both sexes were educated in the monasteries and convents, and the majority lived there. The often gentle attendants on people of quality did what upper servants do for their masters and mistresses now. They were gentlemen and lady helps, to use the phrase fashionable in modern Utopia. The servant was more of a dependent, and far better cared for by the family he or she served, than the same class at the present day. The anonymous author of the "Ménagier de Paris," a book printed in the fifteenth century, and containing the advice of a husband to his young wife, says concerning the servants she has to engage:—"Avant de les prendre à votre service, sachez d'où elles viennent; dans quelles maisons elles ont été; si elles ont des connaissances dans la ville, ou si elles ont une *chambre-à-loyer*," ‡—a term sufficiently descriptive, and one likely to frighten any honest burgess 400 years ago from engaging its occupant; for in those days only wild students, dismissed soldiers, adventurers, and strollers of all kinds lived in houses of public entertainment,—the *auberges* of the large towns. Travellers of note,—in fact, all those who could command letters even to the humbler inhabitants,—were received as guests, and it was deemed an accident or an indignity if men of any bearing were compelled to put up at an inn. Of course, besides those enumerated, there were inhabitants in all cities of no calling or caste who lived as they live in London now, anywhere and anyhow. The revolution at the end of the twelfth century, which rendered the less educated classes free of the cloister, and gave them liberty to earn their living as they chose, necessarily inflicted on some the obligation to starve,—an even then vexed problem, the solution of which becomes more difficult as sanitary science develops fresh resources to oppose the natural law of the survival of the fittest. At the beginning of the fifteenth century, the beggars and vagabonds of France formed themselves into a sort of corporation, of which branches were established in all the large towns. Certain parts of Paris were entirely given up to them, and their principal centre, to use a modern expressive phrase, was the Cour des Miracles. This was a large blind alley, unpaved, muddy, and necessarily pestiferous. In one mud hut, hardly four yards square, and half interred in the earth, there lodged more than fifty families with an infinity of children, legitimate or natural, and naked. In this and other similarly constructed shelters lived 500 families piled one upon another. When, more than a hundred years after the establishment of this extraordinary corporation, an attempt was made to carry a new street through the Cour des Miracles, the workmen were attacked by the inhabitants and compelled to relinquish their task.*

The sixteenth century effected many reforms, but it did not improve the dwellings of any part of the community at large. It simply put a classical and therefore foreign exterior to a traditional arrangement of internal distribution; and indeed little alteration was made in planning the interiors of houses by the architects of Henri IV. and Louis XIII. Only at the beginning of the seventeenth century did the habit of living in common, or, more correctly, in large groups, entirely disappear; and then the *salle* or common hall was divided into several distinct and separate rooms. Many and lasting improvements must have been made by both the architects Mansard, and their brilliant contemporaries. The Parisian house in flats, properly so called,—intended for the occupation of the middle class,—dates, I think, from the time of the younger Mansard, when also many of the noble mansions,—*entre cour et jardin*,—still extant in the Faubourg St. Germain, were commenced by the nobility. The custom of inhabiting houses by floors or flats is probably, however, much older, such a system being the logical consequence of increase of population in a town the limits of which were circumscribed by walls and fortifications. But the tall houses which attracted the attention of the legislature during the reign of Louis XIV. did not exist in Paris at the beginning of the seventeenth century. A bird's-eye view of the city, as it appeared in 1607, engraved upon copper by Léonard Gaultier, shows the Cathedral of Notre Dame towering above a number of one-story tenements; and the churches and public buildings stand out from a mass of houses of small elevation. The *fac-simile* of a design for embellishing the capital projected but not executed by Henri IV., in 1610, presents a similar appearance. I am constrained to think that the intercourse which had long existed between Paris and Scotland led to the adoption by the former of residence by flats as it was then practised in Edinburgh even by families of noble birth.

Amidst the multiplicity of plans which are to be found in French architectural publications of the last two centuries, there is not one (or at least I have not found one after diligent search) which represents a house arranged in flats, as such houses are understood in Paris at the present day. Nor are there any plans extant of Scotch houses of a like description, even though it is beyond dispute that many of the houses in Edinburgh of the sixteenth and seventeenth centuries were built in flats, some of these forming blocks of thirteen stories,—each story being a self-contained residence. As early as 1384, Froissart, after a visit† he then paid to Edinburgh, calls it the Paris of Scotland. Perhaps no city in Europe has been built upon a site more opposed to the possibility of lateral extension than was the old town of Edinburgh. The circuit of the walls was enlarged in 1513, and even then few if any European cities contained so large a population confined within such narrow limits. Unable to spread laterally, the city increased vertically; instead of adding to the number of houses the citizens piled new stories upon the houses already in existence; and those who chose to cut down and cart away timber from the borough muir were allowed to add overhanging wooden fronts projecting over the streets. The custom of residing by floors, although it may have prevailed before the burning of the city by the Earl of Hertford in 1544, probably did not become general until then. The old Tolbooth was five-storied, which seems to show that even before the close of the sixteenth century, it was usual to erect comparatively lofty buildings. There is, however, actual evidence of "an eligible town residence" to let in Parliament-close, Edinburgh, in 1680, the official description of which is:—"The house presently possessed by the Lady Ninewells, being the fourth story above the entry from the long transs of the tenement upon the east side of the Kirkheugh, consisting of four fire-rooms, with one cellar, at a yearly rental of one hundred and forty-four pounds Scots."† On some of these flats were shields of arms, indicating the position in society of their occupants; and the evidence of design in the older houses of the old town still existing, or which existed a few years ago, leaves no doubt that the flat system, which even in modern times has received greater development in Edinburgh than in Paris, was in vogue in the former capital at least 300 years ago.

In Paris the legislature, by limiting the boundaries of the city, has assisted the people in controlling the number of the population. By the octroi tax, which is an almost ancient institution, and the Chinese wall of fortifications which, thanks to M. Thiers, is an almost modern one, the Parisians have been always reminded that their city must not exceed certain bounds. In the reign of Charles IX. the circle of the fortifications was widened to receive the Palace of the Tuileries, then in course of construction. Under Louis XIII. new walls were erected on the north-west side of the city, but under his successor the fortifications on the north side of the Seine were demolished, and the line of boulevarts as they existed in the time of Louis Philippe was formed. Many of the embellishments suggested under Louis XIII. as well as some of those projected by his immediate predecessor Henry IV., were executed during the reign of Louis XIV., when more than eighty new streets were formed, and the majority of the old ones improved and partly rebuilt.* The splendour of his court had brought the rich of all nations to France, and the pre-eminence of Paris amongst French cities had never before been so firmly established. The population had increased in disproportion to the accommodation the city afforded. It was computed at the beginning of the eighteenth century to contain 500,000 inhabitants, whereas at the end of the sixteenth century it is said that there were only 200,000 souls within the walls. At the end of the reign of Louis XV. Paris was surrounded by a wall comprehending a larger area than any previous inclosure; and at the time of the ninth inclosure in 1788 the population was about 600,000. The city which, under Louis XIV. covered less than 4,000 *arpents*, had spread about the period of the great revolution over an area of nearly 10,000 *arpents*. From Julius Cæsar to Louis Philippe Paris has been ten times inclosed; but the last inclosure has neither limited the population nor protected it. Whole streets and boulevarts of houses, villas, and other private residences have sprung up outside the walls. A census taken in 1817 gave a population, minus prisoners and hospital patients, of 657,172 inhabitants, and showed that 224,922 families resided in 26,751 houses, making an average of about eight families per house. Eight years ago Paris had 2,000,000 inhabitants to 50,000 houses, which makes forty inhabitants per house.†

That the house-in-flats, expressly constructed for the purpose, was not common in Paris until the end of the reign of Louis XIV., I think is nearly certain; and he died, amidst the execrations of the Parisians, in 1715. During his reign many of the houses reached a height of eight and sometimes ten stories, but the absence of plans, or, indeed, any description of plans, for houses let off in flats, in such works as those of Pierre-le-Muet, published in 1681, of Blondel, published in 1772, or of Patte, in 1777, leads me to suppose that no special thought was expended by architects upon such buildings; and, indeed, that many were old houses forsaken by their original owners, and adapted to the immediate wants of several tenants. According to M. Viollet-le-Duc, the custom of building houses for the express accommodation of several families does not go back further than the seventeenth century; and he probably infers that the new streets opened in the reign of Louis XIV. were lined with houses of this description. But the planning of them was of a primitive description. The comforts of the middle class, and special contrivances for improving their homes, are not likely to have preceded similar benefits conferred by the architects of the last century upon their noble patrons.‡ M. Patte, writing in 1777, says,—"People used to be lodged for appearances only, and the art of living comfortably, and by oneself, was ignored. All those agreeable arrangements that are now admired in our modern mansions, where the apartments are separated with

* M. Viollet-le-Duc, Dictionnaire de l'Architecture Française,—Maison, p. 223.
† Ibid., p. 273.
‡ M. Lacroix, "Mœurs, &c., au Moyen Age."

* Sauval, vol. i., p. 510.
† I am indebted to Mr. Bryce, R.S.A., and to Mr. Thomas Arnold, for my information about Edinburgh.

* Legrand & Landon, p. 28.
† In the 26th volume of the "Revue de l'Architecture," edited by M. César Daly, published in 1868, the following statistics by an Austrian architect are given concerning the average number of inhabitants per house in the principal European capitals:—London, 8; Berlin, 32; Paris, 35; St. Petersburg, 52; Vienna, 55.
‡ In the "Siècle de Louis XIV.," chap. xxx., written by Voltaire towards the middle of the eighteenth century, the author says:—"Il n'en coûte guère plus aujourd'hui pour être agréablement logé, qu'il n'en coûtait pour l'être mal sous Henri IV." Dr. Johnson, after a visit to Paris in 1775, said:—"The great in France live very magnificently, but the rest very miserably. There is no happy middle state, as in England."

so much art, those back staircases which render domestic service so easy . . . have only been invented in our time: it was at the Palais de Bourbon, in 1722, that the first attempt of the kind was made which since has been so frequently imitated." The introduction of back staircases into houses in flats dates only from the beginning of the nineteenth century, and M. Bedeau, a Parisian architect, is said to have originated an innovation which obviously contributed to develop and improve the system of arranging residences by floors. Blondel, in his "Cours d'Architecture" (1772), gives the elevation of a house in flats, consisting of four stories above an arcaded ground-floor; also another of a similar house built about 1719 in the Rue St. Martin; but he gives no plans, and he adds, with significant *naïveté*,—"We have shut up most of these bad examples in our portfolios, to be shown only to those of our private pupils, who, studying under us, ought, so to speak, to learn to distinguish with equal interest, both the mediocrity of architecture and its sublimity." The Place Vendôme, which was designed by the younger Mansard at the close of the reign of Louis XIV., was certainly not intended for the residences of families by floors; although some of the houses have been since converted into flats; and I am led to think that the modern Parisian *maison-à-loyer* only received its present developed form after the great French revolution.

M. César Daly, who is the recognised authority in Europe upon this kind of habitation, has divided Paris houses into three heads, according to classes of the population—the aristocracy, the *bourgeoisie*, or middle class, and the working class. The aristocracy includes, of course, more than is understood by the term in England, and the families of this class live in private houses (*hôtels*); the middle-class families occupy houses in flats (*maisons-à-loyer*); the working-class families, including, perhaps, more than is comprised under the term workman, inhabit houses from which the two classes above them have departed; and it is easy to understand that the rebuilding of Paris has been as disastrous to the men who were engaged in the mechanical execution of the work as it has been beneficial to their employers. Indeed, the working-class has been long driven from that part of Paris best known to the foreign visitor. As street after street was formed through the old and dilapidated quarters of the city, the workmen and their families were forced to seek dwellings further off—outside the barriers, and often in the immediate suburbs. A few, however, of the new houses erected in the cheaper localities are inhabited by the families of artisans, and the higher sorts of workmen. These houses usually consist of an external wall in rough stone plastered; party walls of the same material, and back external walls in wood and plaster. They have only one small staircase, and the floors throughout are tiled. The ground-floor consists of small shops, and the stories over are divided sometimes into small workshops, with bedrooms adjoining, sometimes into lodgings for a man, his wife, and one or two children. But it must be owned that new houses of this description are extremely rare. As M. César Daly has poetically said that the house is the family vestment, so, I may venture to add, the worn-out clothes of the few descend in all ages and in all countries to cover the many.

The house in flats, the habitation of the middle class of Parisians, has been divided by the same authority into three types or classes* :—

1st Class.—The front towards the boulevart or the street is of freestone, elaborately ornamented, and the external walls towards the courtyard are of the same material plainly treated. There is a grand staircase of an oak or iron carriage, with treads of stone, and sometimes marble, and a good back staircase for servants and tradespeople. On the ground-floor there are frequently shops. On each of the three stories over the ground-floor is an *appartement* or flat richly decorated. The joinery is of oak, painted and picked out with gilding, and the parquetry is polished oak of a superior pattern. The ironwork of the doors and windows is varnished and gilt. The ceilings and cornices are enriched in *carton pierre* coloured and gilt. The fourth story is usually divided into two residences. The servants' bedrooms are on the fifth floor; that is, in the roof. The courtyard is between 30 ft. and 40 feet square. There is a large carriage-entrance, and the passage, including small pavements for pedestrians, is about 10 ft. wide. Stables, coach-houses, and saddle-rooms, for the use of the occupants of the house are arranged in the courtyard. Water is laid on. The grand staircase and the entrance vestibules of all the residences are warmed by an apparatus placed in the basement, and at the expense of the landlord. The staircase is lighted with gas. Each tenant has two cellars in the basement, and two servants' rooms in the roof allotted to him. Such a house in 1860 cost to build about from 1,050 to 1,100 francs per square mètre.

2nd Class.—The front towards the street is of freestone moulded and carved, but the walls of the courtyard are of wood and plaster or of brick. The grand staircase is of polished oak, and there is a servants' staircase. The ground-floor is divided into shops, the four stories over into large residences, the fifth into small ones, the sixth into servants' bed-rooms. There are cellars in the basement, stables and coach-houses in the courtyard and a carriage entrance. The grand staircase is lighted with gas. This class of building cost in 1860 from about 800 francs to 850 francs per square mètre.

3rd Class.—The front towards the street is in freestone moderately moulded. There are six stories lighted from the street. The staircase is of polished oak, but often there is no servants' staircase. There are shops on the ground-floor, and over them five stories of residences of middling size. The sixth floor is divided partly into rooms to let separately and partly into servants' bed-rooms. Generally there is no courtyard, and therefore not a carriage entrance, but a comparatively small door. Such a block of tenements cost in 1860 from about 500 francs to 550 francs per square mètre.

This division into three types of houses is of course accompanied with all sorts of variations. Of late years a few superior houses have been built without a courtyard and carriage entrance. The *entresol* or mezzanine immediately between the ground and first stories has developed after years of abuse into what is substantially a first-floor. It was once the private dwelling of the shopkeeper. Its origin is Italian, and probably due to some economical tenant who having hired the ground story of a building intended for a more exalted use, found it too lofty for his purpose, and so suspended a false ceiling, above which he concealed a home for his household. These mezzanine stories in some of the older Paris houses were often very unhealthy residences on account of their small elevation; but now no story is permitted to be built of a less height from parquet to ceiling than 2m. 60c. (about 8 ft. 6⅛ in.). In the best houses the entresol is often made 3 mètres high, and sometimes it lets for from 200*l.* to 300*l.* a year. Families living over it on the fourth floor are thus enabled to tell their friends that they inhabit *au troisième audessus de l'entresol*, which seems a much longer way than necessary for such logical people as the French to say *au quatrième*. Again, a first-class house may be built in a comparatively narrow street, and then its height according to law will not permit so great a number of stories as four above the shop, but this for economical reasons rarely occurs. Some of the ground-floors of the Paris houses are divided into small residences or bachelors' apartments of two or three rooms each, and these are much sought after by the *petits crevés* and the younger gentlemen qualifying for the title. In other houses the portion of the ground story usually devoted to shops is taken by the landlord and used as offices. When, as sometimes happens, he has erected a private house for himself behind a house in flats which faces the street, the ground-floor of the latter is often utilised as a kitchen and rooms for his servants, while the upper stories are let as residences in the ordinary way. It must not, however, be supposed that the families of the titled or the wealthy portion of Parisian society inhabit flats; there are a few who do; and during the last Empire two English noblemen, the late Lords Hertford and Pembroke, lived in this manner. But London, with all its wealth and security, its aristocratic influence and preserved traditions, does not possess private mansions of a more sumptuous or beautiful character than are to be found at the present day in the old Faubourg St. Germain, and, here and there, in the neighbourhood of the Champs Élysées.

Many fallacies are rife amongst Englishmen concerning Parisian dwellings, and people frequently talk about the "ten-storied" houses of Paris, the fact being that several streets of houses in the city of London are infinitely more lofty than any in Paris.* None of more than five stories above the ground-floor and a roof have been built in the latter city since the year 1784. It was then first enacted that for streets of 30 ft. (French measure) and upwards the height of a façade must not exceed 54 ft.; for streets of from 24 ft. to 29 ft., a façade must not exceed 45 ft. in height; and for streets under 23 ft. wide, a façade must not be higher than 36 ft. This height was to be calculated from the level of the road to the top of the cornice; and in houses of small depth the roof was not to be higher than 10 ft., and in those of extra depth 15 ft. Yet it has been said that the mansarde was invented to evade these laws! † But the curb roof to which the great Mansard gave his name, the tall roofs such as are to be seen at the Château de Maisons,—erected by him (1642–51),—had been in fashion for certainly 150 years before the first laws regulating the height of Paris houses were promulgated. From 1789 to 1791 other decrees were issued, and in 1844 the Count de Rambuteau laid down certain proportions for "the height of façades bordering the public ways," which were little, if at all modified by the Imperial decree of the 28th of July, 1859. The legal height of a Paris house depends upon the width of the street in which it is to be built. This height is measured from the pavement to the top of the entablature, including therein all constructions in stone, in fact everything vertical with the front wall of the house, and this height is as follows:—11 m. 70 c. for streets less than 7 m. 80 c. in width; 14 m. 60 c. for streets of 7 m. 80 c., and above that width up to 9 m. 75 c.; 17 m. 55 c. for streets of 9 m. 75 c. and above that width.

Only in streets or boulevarts of 20 mètres or more wide can house-fronts be carried to the maximum height of 20 mètres. A building situated at the corner of two streets of different widths may sometimes be carried on the side of the narrower to the height permissible for the wider street. But whether house-fronts are placed on the line or are set back from it, or are erected sloping or according to any other manner, if they face the street their height is determined by the width of the street in which they are built. Buildings hidden from the street in courts and quadrangles must not exceed, as far as their fronts are concerned, the height of 17 m. 55 c., measured from the level of the courtyard in which they are placed. And lastly, although on the boulevarts and streets which are 20 mètres wide the façades may be 20 mètres high, only five stories, including the entresol and exclusive of the roof, can be constructed over the ground floor. I am particular in these details because several erroneous statements concerning the laws regulating the height of buildings in Paris crept into the evidence taken before a Parliamentary commission which sat last year upon the subject of the Metropolitan Buildings Act.

The façade of houses erected upon the boulevarts and principal streets of Paris, must perforce be composed of freestone, and the face towards the street of the chimney-stacks, as well as of the party-walls, which, as in London, are carried up above the roof, must be of the same material. Although I am not sure if the law compel proprietors to build the floors of their houses with iron joists, filled in with plaster concrete, this is the invariable practice, and the general application of iron to the construction of floors in Paris is due to the carpenters, who in 1840 "struck" in a body, and with such effect that it was then impossible to obtain a carpenter either for love or money. Iron floors of a very complicated character had been used for a few public buildings,‡ and the necessity to do without carpenters compelled the architects to extemporise floors with bands of iron placed on edge, and strengthened with transverse iron bars. The

* See "L'Architecture Privée," by M. César Daly, one of the most useful modern books for both architects and students.

* In "Town Dwellings," a pamphlet, published by Messrs. Ashpitel and Whichcord, in 1855, occurs the following passage:—"The huge ten-storied houses of the Continental cities, where a peer inhabits the first floor and a chimney-sweep the mansarde!"

† In the Transactions of the Royal Institute of British Architects, Mr. G. R. Burnell, C.E., is reported to have said:—"The law which regulated building in Paris rendered it necessary that the cornice should not be more than 66 ft. from the pavement . . . . . This law was enacted in the time of Louis XIV., and the mansarde was invented for the purpose of evading its provisions." A statement both obscure and incorrect, and one which has been recently quoted.

‡ M. Brébion, architect for the Louvre about 1778, used iron in the vault and roof of the Museum, and in 1789 the vaults, floors, and roof of the "Théâtre Français" were constructed in iron by M. Louis. M. Patte, writing in 1769, says that, in 1753, there was established at Essone, near Paris, a manufactory of iron frames and casements which were not heavier than those made of wood.

French custom of filling in wooden partitions and the spaces between the roof rafters with broken lumps of old plaster walls run in fresh plaster, led to attempting the same process with the iron framework before mentioned. Ultimately the rolled ⊤ and double I joists were introduced by a few energetic manufacturers, and the problem of iron floors was solved, at least as far as Paris is concerned.* These floors, unlike similar work in England, are no man's speciality or patent. The rolled iron joists, once bought, can be laid by any smith, carpenter, or *maçon*, and finished in plaster by any one of the last-named trade. An order from the architect is alone necessary, and it may perhaps be useful to explain why an architect is absolutely indispensable to people about to build in Paris. In France there are no general contractors as in England,—none able or willing to contract for a whole house, much less a row of houses. The architect alone knows how to summon around him the several tradesmen who, in their different capacities, assist him in erecting the building he designs,—if not always under his immediate direction, under that of a trusted assistant or favoured pupil. On an ordinary Paris house there is rarely a clerk of the works. The foreman of the *maçons*, in conformity with tradition, is the head of all the workmen of all trades. He is the *mattre-compagnon*; and in France the *maçon* is not a worker in freestone, like the English mason. He is bricklayer, plasterer, builder of rough stone walls, worker in cement of all kinds. The *mattre-maçon*, *i.e.*, the contractor, is intrusted, not only with the foregoing works, but also with the masonry, as the term is understood in England. He employs the *tailleur-de-pierre* to work the freestone, and the *ravaleur* to finish it when it is fixed in its place. In ordinary buildings the *maçon* erects the scaffolding,—only on large edifices is the carpenter employed in such work. Indeed, it is hardly necessary in a house in flats to enter into an agreement with a carpenter; for, if his services be required, the *maçon* will employ him, and include the carpentry in his own bill. All such and similar work is paid for by measurement after completion, according to a municipal tariff, which varies annually, and which forms a basis of prices for artificers' work done within the city of Paris. Contractors sometimes tender against each other and agree to work at so much per cent., as the case may be, below the municipal prices, although some private works are executed at those prices. The Parisian architect has to treat with, say, a dozen tradesmen often unknown to each other, innocent of any sort of mutual organisation or connecting link, and unwilling to accept instructions from any one but their master,—the master-of-the-work. A dozen different contractors imply a dozen sets of drawings, a dozen stamped agreements, a dozen bills. These bills are prepared by surveyors (*métreurs*), who are specially employed by, or are in the employ of, the tradesmen in question. The architect has to verify the items of each bill, to check the dimensions, and reduce or modify the prices for labour and materials in accordance with the signed agreements and the Parisian tariff. He consequently employs a specialist (*vérificateur*), whom he pays out of his usual commission, sometimes eight francs in the thousand upon the total of the contractor's bills, sometimes as much as 1 per cent. The architect alone is responsible for the accuracy of these bills, the name of the surveyor who assists him not appearing in the transaction; and his responsibility to his client and to the State endures for ten years after the completion of the work with which he has been entrusted. Some of the tradesmen's bills are accompanied with drawings often of an elaborate character, of the particular works executed by them; and this occurs even when the architect's design has been carried out without alterations in the course of its execution, and when his drawings have been very carefully prepared.

* M. Viollet-le-Duc, "Entretiens," vol. ii., p. 339.

INSTITUTE OF PAINTERS IN WATER-COLOURS.

IT would be absurd to deny that the Exhibitions of the Institute display a high average of executive power in water-colour drawing, or that there are not to be found in all its collections some works of a high class in every way; but the prevalent mannerism of style among its members, and the commonness of idea and feeling which pervades a large proportion of the drawings, are drawbacks which show such a decided tendency to increase rather than diminish, that a visit to the gallery causes at least as much vexation as pleasure. As we walk up the room and see the eternal "Haddon Hall" of one member, and the stage trees with lights picked out in strong yellow, of another; as we once again come upon Mr. Bouvier's mincing Greco-French maidens, and are once more invited by Mr. Absolon to accept pinky-red balls with two or three spots upon them as representations of the human face divine, our wits get confused, and we begin to doubt whether it is this year's Exhibition or the last one that we are in, so pertinaciously do the same phenomena seem to come round with mechanical regularity. When, however, we see such a production as "Switzerland: the passing Carriage" (98), or the sketch-portrait of a disagreeable-looking baby (106), or the "Study" (199) of an Oriental ruffian in the style of a playing-card picture, our sense of identity returns, and we ar eforced to confess that we have not before seen any productions like these in the gallery,—a confession which is mingled with a wonder as to what will come next.

Among the contributions which form the pleasing minority in the collection, Mr. J. D. Linton has a large work, "Off Guard" (271), a set of rather nondescript helmeted and cloaked soldiers thrumming guitars and singing in the guard-room, while a female attendant brings an additional supply of whatever beverage they are accompanying the song with. In richness of tone, in careful but not laboured execution, in the completely satisfactory texture of every part, and the balance of the whole as a composition, this is in every way worthy of the artist; unfortunately the subject is uninteresting, and has little point. Of other figure pictures Mr. Townley Green's "Wayside Inn" (78), evidently in the good old coaching days, is really good; clear and decided, though not too hard in execution, and with much humour in the small groups round the two tables where wine and beer respectively are drunk; at the table where the more aristocratic refreshment is served the two clergymen are admirably contrasted with each other and with the very pretty young lady who faces them. The same painter's "Christmas Time" (47) shows much character and minutely-careful execution in the little figures bargaining for holly in the snow. Mr. Beavis's large work, "Tilling the Ground in Syria—Changing Camels" (291), is a capital and forcible drawing, more really original in manner and style than is usual with him, representing a turbaned black lad either putting on or taking off the harness of a kneeling camel—it is not quite clear which—while the other quadruped waits beside him. A couple of clever little studies by Mr. E. J. Gregory on one of the screens are to be noticed, "Studio Furniture" and "The Bride" (374, 377), and on the other side of the same screen the stained wood decorations by Mr. Herkomer (382, 384), which, besides the interest of a somewhat new method, show considerable originality of idea and invention, especially in the two figures representing "Legend" and "Oracle."

Mr. Collier holds the same post on the wall which he has held and merited in the two last exhibitions. His contribution this year is, perhaps, not quite equal to the previous ones, but has the same qualities of breadth of style and fine atmospheric effect: it is a barren coast scene under the title "Afternoon" (262). Mr. Small's "After the Storm" (297) has power and originality enough, but the sky is surely overdone and too inky, and as a representation it is not in all its details quite successful or explanatory. Among the artists who have resisted the local influence of mannerism is Mr. Syer, whose studies of landscape still retain the freedom of execution and power of effect which we have before noted; the best is the "Sketch near Clevedon" (300); and Mr. Wimperis is true to the standard of genuine water-colour art in various works coming more under the denomination of "Sketches and Studies" than most that are here, of which may be noticed "On the Shore, Harlech," and "Leominster Church" (48, 49), and the "Dipping Place" (115); and Mr. Whymper's "Hascombe Hill" (328) is in the same good vein, though a faulty effect in perspective is created by the train on the embankment to the left, which foreshortens too sharply, and seems running down hill. Mr. Hine contents himself with small studies, except "On Midhurst Common" (81), where the artist is seen on his usual scale, but not in his usual tones, having left his beloved downs, with their long green curves and swells, and betaken himself to the browner tones and more broken foreground of a different style of landscape. Sundry smaller studies by this artist are all, as little things, delightful in their way. Mr. J. Skill also sends small sketches from the neighbourhood of Venice and elsewhere, which are very pleasing specimens of the sketch proper; "The Colioni Monument" (323), among others. The same may be said of the little view of "Torcello" from the distance (24), looking over the spits of sandbank and lagunes, by Mr. Holloway, who also has a larger and more ambitious drawing, still sketchy in style, of "Santa Maria della Salute" (335), very bright and aërial in effect, and in which the artist has not been afraid of dealing frankly with colour in the distant buildings. His "Near Winchester" (254) is a drawing of much beauty and feeling. Mr. Cattermole is unfortunate in "Ferdinand and Miranda" (245), but decidedly fortunate in "Picketed" (244), where his group of horses are full of spirit and character. A good many drawings by Mr. J. C. Reed have an originality of tone and treatment about them, and though decidedly mannered, are in a manner which is free and effective, however conventional it must appear, more especially when the same trick of handling is found in each drawing. Mr. Orrock, who found a little while ago a somewhat new method of portraying sea, continues it with some success, and is best represented in the "Storm off Iona" (196); in another drawing the artist again repeats the rainbow effect of which he gave nearly half a dozen editions in a previous exhibition. Mr. E. H. Fahey is good in "Rainwater" (92), the title for a study of a nook of old building with a figure holding a pitcher in the foreground. A single sketch by J. Israels, "All worn out" (279), is enough to show how much real pathos differs from sentimentality, the highest pitch of feeling to which many of the contributors attain. Those who care for Mr. Guido Bach's figures may find plenty of them; those who are not tired of Mr. Hargitt will find his cattle still furnishing high lights in the foreground; and other good old customs are kept up in different parts of the gallery.

SOME OLD HOUSES AND THEIR STORIES.

BELLSIZE HOUSE.

ASSOCIATED with the numerous places of public entertainment which were popular in the last century, gardens held, as they had long held, a prominent position. They were to be found in every direction amongst the rustic and semi-rustic suburbs of London, all within easy walking distance of the great old city. But now it is long since rows of ugly brick box-like houses took the places of their trees and shrubs, displacing their little green arbours and comical grottoes; their fish-ponds, bowling-greens, dancing-rooms, and music-houses; converting the lover-frequented leafy alleys, broad gravelled paths, and hedge-row mazes into stone-paved streets, dingy lanes, courts, and labyrinths of unwholesome alleys,—all densely populated by people, most of whom pass half their days without seeing a genuine flower-garden, or treading the green turf of a breezy hill-side. Where now are the once famous old gardens of the jolly Bankside in Southwark, or in Lambeth?—those of Marylebone or Soho?—of Tyburn, Hoxton, Islington?—of Westminster or Highbury?—of Highgate, Hampstead, Hackney, Brixton, Bayswater, or Mayfair? They have all been swept away during the passage of the past, or within the memory of the passing, generation; and of nearly all, we may add, not even a green grass-blade remains to mark their sites.

Conspicuous amongst these places of out-door amusement was Bellsize House, an ancient mansion in the Hampstead-road, standing in the midst of a pleasant garden, with an extensive park attached to it, the site of which is still known as "Belsize Park," although the fine park, gardens, and the stately old-fashioned mansion have long been absent from that locality. In 1720 the advertisements of this place of entertainment announced that "the park, wilderness, and gardens" were "wonderfully improved, and filled with a variety of birds, which compose a most melodious and delightsome harmony," and must have been far preferable to the mawkish love-songs then in vogue at such places, as in fashionable drawing-rooms, songs which were full of artificial stilted sentiments, and often had a strong dash of coarse indecency in them, and which popular composers, not birds, set to jingling accompaniments, forming anything but "a most melodious and delightsome harmony." Many of these songs may be found, words and music, in old magazines of the period, of which some two

or three score fill out-of-the-way shelves and cupboards in our library.

Bellsize House stood in the open country, and as a place of amusement, in its earlier days, was not sufficiently easy of access to the meaner sections of the London population to attract any but the more select classes of visitors, and therefore it depended largely for support upon the fashionable world, who migrated once a year from the aristocratic portions of the metropolis,—that is to say, from Holborn, Bloomsbury-square, Covent-garden, Bedford-row, Brunswick-square, Mecklenburg-square, and their immediate neighbourhoods,—to such select watering-places as Islington and Hampstead; between which latter delightful village and Bellsize coaches ran regularly during the season, carrying passengers to and fro at sixpence per head. But on Sundays and holidays the middle and lower classes, dressed all in their best, found their way to Bellsize House and grounds; and on these occasions the more fashionable visitors were supposed to hold themselves aloof, and content themselves with the various diversions provided in Hampstead—the famous Assembly-rooms, and the public gardens established in and on that side of it farthest from London, some of which, shorn of their old extent and pretensions, still survive to delight the eyes of Cockney holiday-folk brought down afoot, or in tramway, cars, railway-carriages, and omnibuses, who call all the way London, and have no idea of its ever having been much unlike what it is. Of such visitors in such a resort a wit of the period—one W. Woty—wrote,—

Bellsize House. From an Old Print.

"Human beings here
In couples multitudinous assemble,
Forming the drollest group that ever trod.
* * * * * * *
Fathers and mothers, brothers, sisters, friends,
And pretty little boys and girls. Around,
Across, along, the garden's shrubby maze,
They walk, they sit, they stand. What crowds press on!
* * * * * * *
Here he, who all the week
Took bearded mortals by the nose, or sat
Weaving dead hairs, and whistling wretched strains,
And eke the sturdy youth, whose trade it is
Stout oxen to contend, with gold-bound hat
And silken stockings strut. The red-arm'd belle
Here shows her tasty gown, proud to be thought
The butterfly of fashion; and, forsooth,
Her haughty mistress deigns, for once, to tread
The same unhallow'd floor."

The journey from London to Bellsize by daylight, past meadows and cornfields, market-gardens and groves of fine old trees, was pleasant enough, but the return journey in the dark, with not a lamp to show the way, was full of terrors. Even for riders in carriages with armed attendants and link-bearers, the journey home was none too safe. Apart altogether from the darkness and the bad condition of the roads,* the way abounded with gangs of savage footpads and murderous highwaymen, whose daring was only equalled by their brutality. Some idea of their doings may be formed when we add that in 1744 the Lord Mayor and aldermen of London carried an address to the king, wherein they spoke of "divers confederacies of great numbers of evil-disposed persons, armed with bludgeons, pistols, cutlasses, and other dangerous weapons, infesting not only the private lanes and passages, but likewise the public streets and places of unusual concourse." Smollett, writing on the same subject, says:—"Thieves and robbers were now become more desperate and savage than ever they had appeared since mankind was civilised. In exercise of their rapine, they wounded, maimed, and even murdered the unhappy sufferers through a wantonness of barbarity." Walpole wrote in 1752:—"One is forced to travel, even at noon, as if one were going to battle"; and we read in the "Annual Register" of 1763:—"October 21st, a horse patrol, under the direction of Sir John Fielding, is fixed upon the several roads near the metropolis for the protection of his Majesty's subjects. The patrol consists of eight persons well mounted and armed." This patrol was afterwards increased from eight to thirty men,—a very significant sign of the times. The toll-gate keepers were all armed, and dare not keep any money at the bars after dusk. Bearing such things in mind, the following notice appended to the advertisement of Bellsize House in 1720 will be the better understood:—

"For the security of the guests, there are twelve stout fellows, completely armed, to patrol between London and Bellsize, to prevent the insults of highwaymen and footpads that may infest the roads." Such were the perils of the Hampstead-road a hundred years ago, and those who now indulge at night and morning in threepenny rides from Hampstead to their offices in Town all the year round, and rail against the police, may advantageously contrast those times with our own.

All the public gardens opened early in the morning, the usual hour being seven, and it was quite a common thing for the visitors to take their breakfast therein. The Ranelagh Gardens advertised breakfast as included in the charge for admission (half-a-crown), and in the Bellsize advertisements we read:—"Every morning, at seven o'clock, the music begins to play, and continues the whole day through; and any persons inclined to walk and divert themselves in the morning may as cheaply breakfast there on tea or coffee as in their own chambers." The ordinary hour for breakfast was then eight o'clock. George III., who rose at six, with his queen and children, always breakfasted at that hour.

The rage for gambling which then infested all classes of the community, and was specially denounced from the press, the pulpit, the platform, and the stage, spread to these places of public resort; and it was said that many a man lost in an evening's play at the gardens more than he could have been robbed of on the road outside. Horace Walpole, to illustrate the extraordinary power of this mania for gambling, and speaking of one of the worst of the most fashionable "hells" in London,—White's Chocolate House,—tells how, on the occasion of a man falling in a fit outside its door, bets were at once made on the probability of his being dead; and when a surgeon would have bled him, the brutal aristocratic fops who had bet that he was not alive furiously interposed, crying out that they would have no foul play of that kind, that the man should be let alone! This story has often been repeated, but it belongs to our subject, and will help to realise a fact to which this place of entertainment, and others like it, owed their abandonment by respectable visitors, and indirectly their final degradation and suppression.

The Park at Bellsize must have been one which extended for a considerable distance towards Hampstead, and the views it commanded were spoken of with enthusiastic admiration by many writers of its day. Some idea of its space may be formed when we say that, in 1722, on the occasion of a great hunt within it, when there were between three and four hundred carriages belonging to the nobility and gentry there, the deer, a wild one, was chased for about three hours before it was brought to bay by the dogs and killed by the huntsmen. At this time the place had arisen to the height of its fashionable reputation, and it is on record that the Prince and Princess of Wales dined there.

There is one feature of eighteenth-century life which was even more offensively prominent than the gambling mania to which we have alluded; that was the universal love of intrigue, which made virtue in woman a thing to blush for, and immodesty a fashion. Even those who were not vicious affected to be so, and men and women of the highest rank openly boasted of evil doings which they were never guilty of, merely to appear fashionable. To these real and pretended intrigues, with the moth-like sportings about a dangerous flame which so often resulted in torture and lasting misery, the dark embowered lanes in the secluded paths and alleys of Bellsize Park and Gardens lent both actual and seeming encouragement. Despite the protestations of the more wise and moral, the vigorous action of a society established for the improvement of manners, and other counteracting institutions, this vice increased so enormously that the gardens owed much of their disgraceful reputation to it, and a reaction setting in in favour of a more pure and moral state of things, the places suffered for the persons who patronised them, and one after another the favourite gardens closed their gates. Bellsize House was shut up about the middle of the last century, and, being very old, was soon after pulled down and rebuilt, when it once more became what it had anciently been, a gentleman's private residence. The view of this old house which accompanies the present article is the reproduction of an old engraving of the period.

* In the year 1716 the roads from London to Highgate were described as "very ruinous and impassable for the space of five months in the year."

THE MONUMENT OF GASTON DE FOIX.

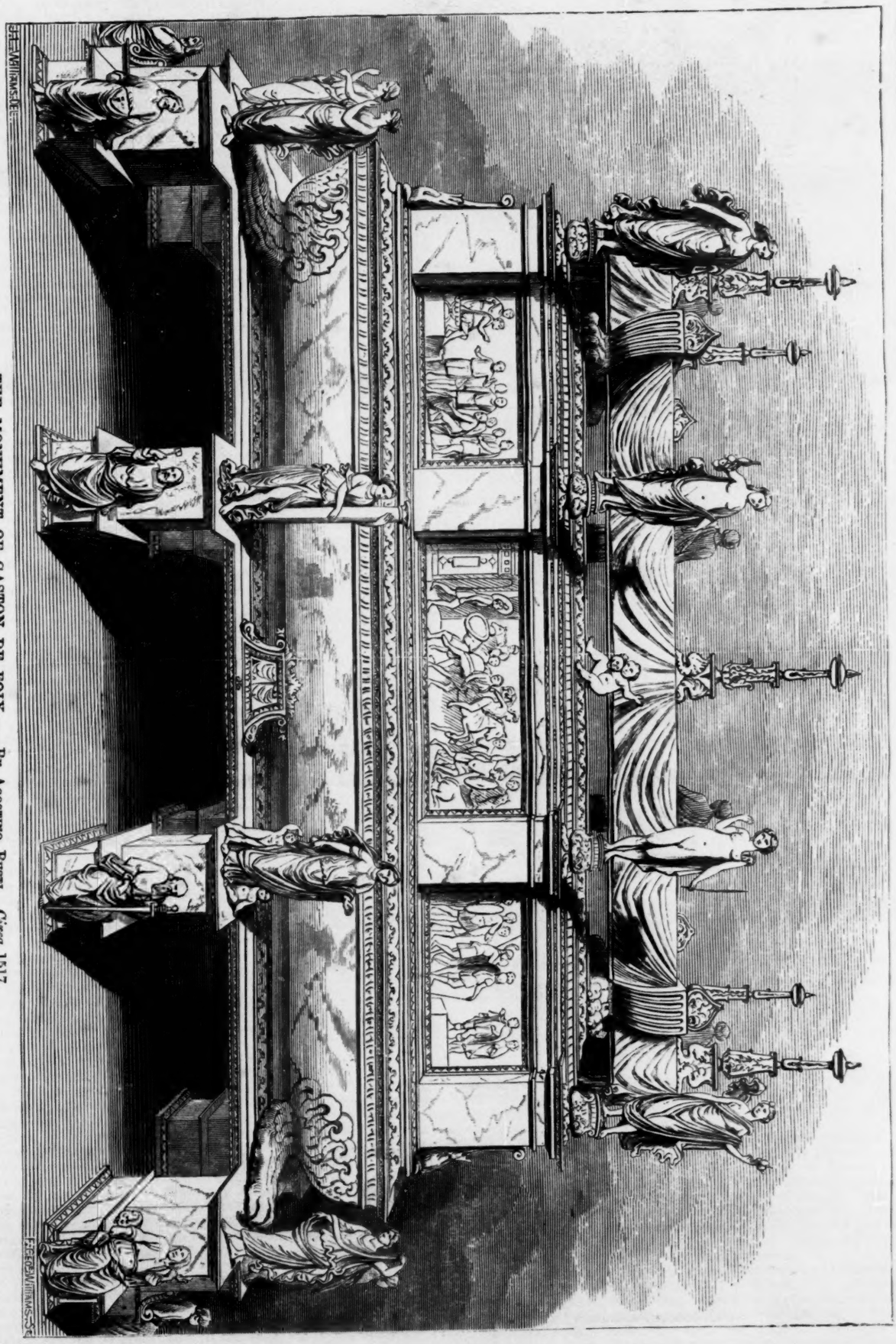
A curious history attaches to this work of art. Gaston de Foix was the nephew of Louis XII. of France, and being killed at the battle of Ravenna, his body was carried to Milan, at that time in the hands of the French, and it was determined to erect a sumptuous monument to his memory in the cathedral there. The work was confided to Agostino Busti, and not being completed in 1517, a number of other artists were also employed upon it. It was fated, however, never to be erected as intended. The precise reason is not known, but the bad fortune which attended the arms of France in Italy seems quite sufficient to account for this, but will not explain the circumstance that its various parts were dispersed throughout Europe, and no less than seventy-seven are ascertained to exist in Lombardy, Milan, Turin, Novi, and two statuettes and some panels in the South Kensington Museum, with the beautiful design for the whole executed at the beginning of the sixteenth century. Engraved representations of these we give in our present number.

In 1871, on the occasion of the National Exposition in Milan, a Commission was appointed and funds were voted for the purpose of bringing together the various parts of this remarkable work, but we believe nothing was done.

Charity.

THE MONUMENT OF GASTON DE FOIX.—*Portions of the Sculpture in the South Kensington Museum.*

Strength.



THE MONUMENT OF GASTON DE FOIX.—BY AGOSTINO BUSTI. *Circa* 1517.

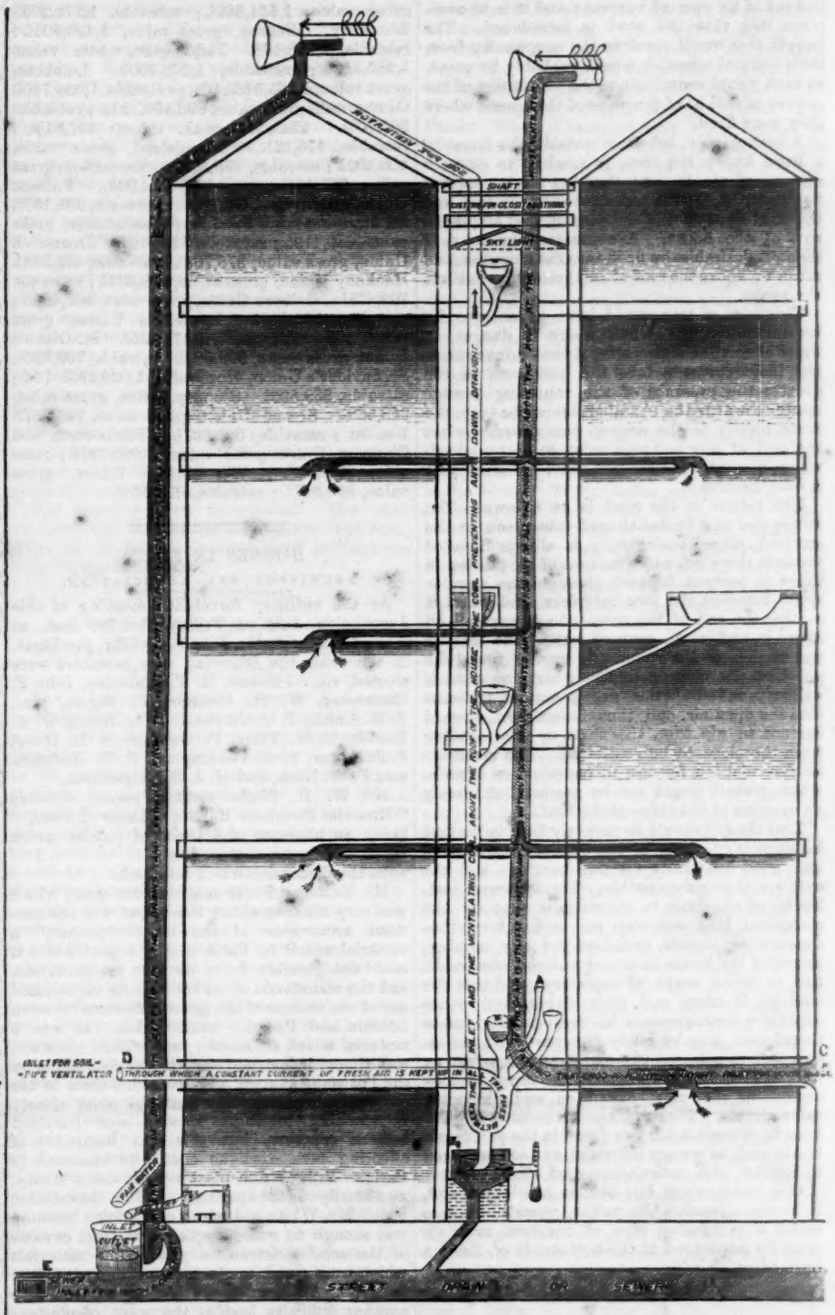
BANNER'S PATENT DRAIN TRAP AND FOUL AIR EXTRACTOR.

IN the course of our remarks on the recent exhibition of Sanitary Appliances in Brighton, we alluded briefly to the trap and ventilating cowl invented by Mr. Banner, and since then readers may have learnt from our advertising columns some particulars of the arrangements. The subject, however, is so important that we think it desirable to enable those who are interested in the matter to understand more fully the patentee's views, and to judge for themselves as to their soundness. We give, therefore, a section representing the mode recommended by the patentee for thoroughly ventilating the house, the soil-pipe, and the sewer, by means of three separate shafts, for which one cowl, mounted above the roof, might be made to suffice. C is the inlet of a horizontal tube leading external air to a vertical shaft or shafts, having his cowl on each, fixed above the roof, by the action of which vitiated air will be drawn from any room in the house, and may be regulated as desired by a throttle valve in each room.

D is the inlet of a horizontal tube leading external air into the "container," or the soil-pipe immediately above the patent drain-trap (B), (seen at the bottom of the diagram in the centre), and thereby causing a constant current of fresh air throughout the whole system of soil-pipes within the house from the inlet (D) to the cowl fixed on the top of the soil-pipe carried above the roof of the house.

E shows the same plan adopted for the sewer, by means of which the present road or street "Ventilators," so called, would become inlets, whereby a constant current of fresh air would be created and—accelerated by the action of a cowl mounted on the top of the pipe—would be constantly maintained throughout the sewer and street drains and up the pipes, carried outside each house above the roof.

The trap is peculiar. It consists of an air-tight chamber of cast iron (enamelled) or some other material, fitted with an inlet pipe, which projects several inches into its interior; the lower part of this inlet, surrounded by an india-rubber band sprung on, and slightly projecting beyond. The end of the pipe is closed and made air-tight by a copper cup pressed up to it by a suitable weight mounted upon a lever, having its fulcrum on an air-tight centre, and its outer end bent upwards at a right angle. The weight is suspended by a link on the raised end of the lever, and it is so arranged that, when the pan is in the act of tilting, the centre of gravity of the weight is brought nearer to the fulcrum, thus reducing the load, and allowing the pan to remain open till it is thoroughly flushed, yet retaining sufficient power to close the trap again after flushing. A series of holes in the raised end of the lever permit of a proper adjustment of the weight, and the bend in the soil-pipe, just above the trap, breaks the force of the water reaching the latter from above. The lower part of the chamber is formed with sloping sides, terminating in an outlet of communication with the drain. The box, in which the axle is fitted in gun-metal bearings, is airtight. The soil-pipe is 4 in. in diameter inside where it is flanged and fixed to the upper side of the chamber, and tapers to 3 in. diameter inside at its point; 2 in. from its point is another flange to keep the india-rubber band in its place. For practical use, instead of any iron pipe above the chamber, there is a flange only, and then a few inches of leaden pipe, in order that a perfect joint may be formed with the leaden or other soil-pipe to be continued up from it. The cup is made of copper, tinned inside; it is 10½ in. long, 12 in. wide, and from the base or scoop or bottom to the top of the hood or hopper, it is 5 in. deep, except in front, where it is only 4½ in. deep, so that it discharges in front, and any clogging is said to be avoided. When the cup falls and is thoroughly flushed, there is an opening of 3 in. between the lowest point of the india-rubber buffer and the bottom of the cup, and also between the foremost point of the buffer and the inside of the cup in front of it, as well as between the front lip of the cup and the inside of the chamber. The cup, when full, holds five quarts of water with the tube immersed in it; this (or less, according to the "weight" opposed to it on the end of the lever) overbalances the weighted end of the lever. Until the moment when the cup falls the soil is kept in the pipe, while the valve has been sufficiently opened for water to pass into the cup and fill it; but it is not till the cup falls that soil passes into it, and when it does so, the water, near'y a gallon, rushing forward from the heel to the front of the cup (with the addition of a down-flow of water from the closet several feet above), carries all impure matter before it into the sewer; the front of the cup falls 4½ in., and in this way its whole contents are immediately swept away, excepting sufficient clean water retained in the scoop to seal the end of the soil-pipe while flushing. While the cup in the trap is down, there is a water-seal of ½ in., which is increased to 3 in. immediately the cup is brought to its normal position, and further increased by the overflow which the weight on the lever will permanently retain in the pipe, to the extent of 6 in. The efficacy of the trap thus formed cannot be destroyed by either pressure or suction. Besides, the area in the chamber for air being large, the water in the cup in its normal position is 2 in. or 3 in. below the top of the cup, which is open all over; and even if the cup could be unsyphoned, the pressure,—the increased pressure,—which the weight on the lever will exercise in forcing the bottom of the cup up to the india-rubber, will always keep several inches of water in the soil-pipe, and effectually prevent any gas from the sewer getting up into the house.



A is a pipe with a screw cap, to test at any time the state of the pipes within the house.
B is the only trap within the house; the waste from bath, lavatory, and housemaid's sink may be safely let through the patent trap.
A second inlet for House Ventilator can be placed at reverse side of the house if thought necessary, and ornamental pillars in a large room may be utilised in a similar way.

In this manner, the patentee maintains, the house will always be effectually trapped against sewer gas; and he is able to dispense with D traps, which, from their conformation, are, in point of fact, miniature cesspools. One of Banner's traps at the basement of the house, which may be placed above the level of the basement, like a gas meter, is considered sufficient for all the closets in a house.

We must not omit to mention another valuable appliance devised by Mr. Banner. Every one knows that ventilating-shafts communicating with the soil-pipes are recommended by leading authorities upon the subject. Although the theory upon which they are constructed is good, they are not always of practical utility. There is a difficulty in getting sewer-gas to ascend a long perpendicular pipe, while in some conditions of the atmosphere there may be a down-draught

instead of an upward current; and it is to overcome this that the cowl is introduced. The benefit that would result to the community from their general adoption would probably be great, as each would contribute to the ventilation of the sewers as well as of the pipes of the houses where they were fixed.

A branch pipe, led from outside the house to a little above the trap, is needed, to cause a current of air in, and thus act as a constant ventilator of, all the pipes between the trap and the cowl fixed on the soil-pipe carried above the roof of the house. A separate pipe may, if thought desirable, be fixed into the chamber, and taken up above the roof of the house, to ventilate the sewer.

This form of trap would have advantages for low-lying districts, where there is danger, in times of flood or high water, of the drains returning their contents into the basement, as the greater the pressure of the returning sewage matter towards the chamber below the trap, the more tightly is the copper pan closed against the end of the soil-pipe inlet, so that no flood-water, sewage, or sewer gas could be forced past it into the house.

The action of the cowl is as follows:—The larger end of a funnel-shaped tube (seen in the section), placed horizontally, is always directed towards the wind, and a current of air passing in there is pressed forward through the annular space between the two cylinders, and when it reaches the end of the inner one it expands all round it, and in its passage out at the smaller end of the cowl a vacuum is created round the point of the inner cylinder, which, by what is vulgarly called suction, draws out its contents into the open air, and thus induces an upward current of air from the shaft or pipe leading from the place to be ventilated. The invention is also adapted for use in churches or schools, where a shaft would not be needed, but merely an opening at the ridge of the roof.

That the cup should be properly fixed in the first instance is of course of the utmost consequence, and good materials for the bearings and the axle are also indispensable. The apparent costliness of the trap in question is met by the statement that one trap will suffice for half-a-dozen water-closets, or indeed for any number, provided the house be not of palatial size, when two or more might be necessary; and that the cost of D traps and their fixing, and other expensive arrangements as regards the closets themselves, may be safely dispensed with, as an inexpensive common pan-closet answers just as well, so far as security against the sewer is concerned, as the most expensive and elaborate valve-closets. These various arrangements have been in operation for two years in the patentee's house, and, as we are informed, and are prepared to believe, with undeviating good effect.

One lesson which Mr. Banner has learnt and, in his turn, teaches the public, namely, that to make a ventilating pipe of constant avail air must be introduced at the bottom, is of itself a boon of value.

RE-VALUATION OF THE METROPOLIS.

Under the provisions of the Valuation (Metropolis) Act of 1869, a return has been issued of the gross and rateable values of the several parishes and unions in the metropolis, as shown by the new valuation lists just completed and sent to the secretary to the managers of the Metropolitan Asylums District, and will come into operation on the 6th day of April, 1876. These returns show the enormous increase in the valuation of property within the metropolis since the first returns made under the Act on the 30th of November, 1870. At that period the gross value of the metropolis was estimated at 24,176,338*l.* 13s. 7d., and its rateable value at 19,900,072*l.* 11s., whilst the valuation lists of the present year, just completed, show the valuation of the metropolis now to be as follows:—Gross value, 27,609,062*l.* 12s. 10d.; and the rateable value, 22,765,676*l.* 10s. Total increase in the value of property since the passing of the Act in 1869 of gross value amounting to 3,432,723*l.* 19s. 3d., and rateable value of 2,865,603*l.* 19s. The way in which these valuations have been made is not very satisfactory, but that is not now the question with us. We give a few of the separate items:—St. George's, Hanover-square, gross value, 1,801,018*l.*; rateable, 1,504,469*l.* St. Pancras, gross value, 1,569,880*l.*; rateable, 1,311,797*l.* St. Marylebone, gross value, 1,561,519*l.*; rateable, 1,235,231*l.*; Kensington, gross value, 1,524,869*l.*; rateable, 1,271,235*l.* St. Mary, Islington, gross value, 1,405,905*l.*; rateable, 1,158,468. Paddington, gross value, 1,282,945*l.*; rateable, 1,078,700*l.* Lambeth, gross value, 1,263,046*l.* 10s.; rateable, 1,034,710*l.* Camberwell, gross value, 699,553*l.* 11s.; rateable, 561,708*l.* Chelsea, gross value, 447,843*l.*; rateable, 376,121*l.* Hampstead, gross value, 410,402*l.*; rateable, 339,464*l.* Shoreditch, gross value, 635,443*l.*; rateable, 514,903*l.* Fulham Union, gross value, 432,013*l.*; rateable, 351,157*l.* St. Margaret and St. John, Westminster, gross value, 632,419*l.*; rateable, 528,476*l.* Greenwich Union, gross value, 578,760*l.*; rateable, 462,268*l.* Hackney Union, gross value, 878,365*l.*; rateable, 709,473*l.* Holborn Union, gross value, 960,895*l.*; rateable, 790,199*l.* Lewisham Union, gross value, 566,803*l.*; rateable, 472,935*l.* St. Olave's Union, gross value, 908,562*l.*; rateable, 759,395*l.* St. Saviour's Union, gross value, 1,029,293*l.* 13s.; rateable, 839,598*l.* Stepney Union, gross value, 358,568*l.* Strand Union, gross value, 746,357*l.* 16s. 8d.; rateable, 620,807*l.* Wandsworth and Clapham Union, gross value, 1,085,738*l.*; rateable, 876,983*l.*; Westminster Union, gross value, 806,877*l.*; rateable, 673,366*l.*

HOUSES IN FLATS.

ARCHITECTURAL ASSOCIATION.

At the ordinary fortnightly meeting of this Association, held on Friday, the 3rd inst., at 9, Conduit-street, Mr. John S. Quilter, president, in the chair, the following new members were elected, viz.:—Messrs. H. P. Monckton, John F. Hennessey, W. H. Crocker, E. Vigers, jun., T. H. Smith, J. C. Coldwell, J. E. Ormes, W. A. Powell, H. W. Prior, P. Cowper, E. L. Drew, J. P. Power, T. F. Pennington, F. W. Hodgkinson, F. W. Nash, and H. J. Hollingsworth.

Mr. W. H. White read a paper, entitled "How the Parisians Build a 'House in Flats,'" being an abstract of a series of papers which we commence on another page.

In the discussion which followed,

Mr. T. Roger Smith said that one point which was very striking about the paper was the constant recurrence of the word "plaster," a material which in Paris played a part which it could not possibly do in our own constructions, and the abundance of which in Paris constituted one of the secrets of the great difference between London and Parisian construction. It was a material which set rapidly, and which, when set, was almost indestructible. It was obtainable by the Parisians at a price that enabled them to use it for all purposes. The material most closely approaching to it in London was Portland cement concrete, but this was incapable of effecting such work as could be executed in Paris. With us fine plaster-work was a luxury, necessarily used sparingly. The description which Mr. White had given of Parisian building was enough to make English architects envious of the solid construction and sound materials which were put into the most ordinary building in Paris. In London we had to contend with another difficulty besides the want of plaster: we had no stone procurable within easy reach, except Kentish rag, a material very unsuitable for general purposes, and we were therefore compelled to use brick. It was probable that had Paris been planted in a clay district, instead of in its own position, a great deal of the excellent and magnificent architecture which characterised it would have been absent. There were other causes for the difference between the architecture of the two cities, which possibly might be better understood by English architects in the future. The large rents which the Paris houses commanded would very well justify an outlay upon the buildings which would hardly be possible in London. He believed that one of the greatest possible improvements for London would be the adoption of houses in flats to a much greater extent than at present, especially for the middle and upper classes. There were a few flats in Victoria-street, Westminster, and some in Grosvenor-gardens, near the Victoria Station, and these, with perhaps a few other isolated examples, constituted all that was obtainable in the shape of dwellings in flats by people who were willing to pay something like 100*l.* per annum rent. Were the taste for such dwellings to extend,—and he thought it would extend if they were well built, well drained, in good situations, and liberally laid out,—the returns they would yield would allow us to construct them with a solidity which would enable them to vie to some extent with those of the Parisians. He thought another secret of the success of this class of building in Paris was the great care and pains bestowed upon the entrances, which were of very ample dimensions. Even where the frontages were comparatively narrow, a large portion was allotted to the entrance-arch, or *porte cochère*, which was always a most dignified feature of Parisian houses. Another point worth attention in the construction of such buildings in London was to make the floors sound-proof; for however tolerant Englishmen might be of the sound of a piano through a thin party-wall, they would not submit to noises overhead.

Mr. Arthur Cates said he had listened with great pleasure to Mr. White's paper, which was full of instruction. Mr. Smith had struck the key-note of the cause of the difference between the construction of the houses in London and Paris when he pointed to the free use of plaster; throughout Mr. White's paper the word *coulée* in plaster was constantly repeated. All that was required was to build the front and back walls with cut stone and the side walls with rubble, and then to make the skeleton of the floors with iron, and run in the plaster, thus securing without much difficulty a very good fire-proof construction. Here in London we had to be content with the more costly Fox & Barrett or Dennett system. He (Mr. Cates) must join issue with Mr. Smith when he said that the beauty of Paris was due chiefly to the abundance of plaster and fine stone. It was due in no inconsiderable degree to the Parisians themselves. Would Londoners have made their city equal to Paris if they had had the same materials to deal with? And would not the Parisians have done something better than we had done, even with our commonplace stock bricks? Not that he was an over-enthusiastic admirer of Parisian architecture, although at one time he thought Paris was a perfect paradise for *façades*. But admirable as was the detail, excellent as were the entrance-gateways, yet the continual repetition of forms and openings so nearly alike, in *façades* regulated by a certain legal height, caused the general effect to pall and become in time wearying. It was not just for Mr. Smith to charge the failings of London architecture upon the material, for brick was an excellent material when well used, but one which had been shamefully ill-treated. There were brick houses in London which were as excellent in execution and as charming in design as it was possible for any architectural work to be. The repulsiveness of the generality of London houses was due either to some defect of our commercial system, or to the shortcomings of the individuals into whose hands it had fallen to provide our dwellings. We were, he hoped, commencing a new era of London architecture, now that it had been discovered that it was possible to make a brick building presentable, and he trusted that something equally beautiful and more picturesque than the Parisian *façade* would be substituted for the monotony of Gower-street. Any one who had been acquainted with Paris for many years, and seen the gradual changes which had taken place throughout the reign of Louis Philippe and during the Second Empire, would know that they had resulted in making Paris more than ever the capital of the world, and a place of resort for all nations. Curiously enough, if he remembered rightly, Paris was indebted to this country for the bulk of the improvements made in the city,—at all events, for the commencement of them. At the time of the capture of Paris by the allies, sixty years ago, a heavy ransom was set upon the city, the money being raised by a terminable annuity running for about forty years, and falling in about the year 1855. The municipality raised the necessary income by means of *octroi* dues, and during the long period of forty years the Parisians became quite accustomed to their payment. When the terminable annuity fell in, the municipality took care to pledge the *octroi* duties in advance, and raised a fresh loan, which, with aid from the State, led to the commencement of the great improvements in the Rue Rivoli, and from that time the expenditure had been exceedingly lavish. If the case had been that of London, the *octroi* dues would have been abolished, for the sake of effecting some petty saving of perhaps a farthing in the pound; but the Parisians were wiser. There was a municipal aspect in which houses in flats might be advantageously considered. London was spread out north, south, east, and west by means of long rows of villas and small houses, each house accommodating only one or, at the most, two families. All this meant miles upon miles of road,

which had to be paved, maintained, scavenged, and lighted with gas at considerable cost; miles of gas and water pipes, and miles of main and branch sewers, were necessary, and the cost of police supervision was very great. In Paris, on the contrary, with the "flat" system in general use, the people were more concentrated, and while the city was not less healthy than London, the cost of drainage, together with police supervision and the maintenance of roads, was greatly lessened in proportion to the people housed on a given area. Opportunities would soon be offered for capitalists to supply London with flats for the middle classes, the new street now being made from Oxford-street to Shoreditch offering some exceedingly suitable sites for such buildings. The new Charing-cross approach to the Victoria Embankment might also be partially utilised as the site of flats of a superior description.

Mr. Thomas Blashill said that the paper had shown how entirely different were the requirements of a French as compared with an English family, and this being the case he did not think it likely that the Parisian system of living in flats was likely to meet with much favour in England. Indeed, in order to make the plan of a French house suit an English family, the English family must change its nationality. He agreed with Mr. White as to the commendable compactness of French kitchens. Enormous waste of space generally characterised the planning of an English kitchen and domestic offices; and great and continuous waste occurred in our kitchens owing to the ill-adapted apparatus provided. What could be more unsatisfactory, for example, with reference to both economy and efficiency, than the ordinary English kitchen range? Mr. Blashill concluded by moving a vote of thanks to Mr. White for his paper.

Mr. J. Douglass Mathews, in seconding the motion, expressed his agreement with Mr. Blashill that buildings planned in the French manner were unsuited to English requirements, although at the same time the system of building in flats, which was an exceedingly good one, might be extensively practised with advantage in London, for Londoners were compelled to reside in the suburbs simply because they could not get residences in town. He agreed with Mr. Cates in thinking that there could be no better position for building some of these dwellings in flats than in the new street from Bloomsbury to Shoreditch. There was no doubt that the system of building in flats was an economical one for service, but it seemed to possess the disadvantage of lacking the privacy which was ensured by a house in stories, as on the "flat" system the servants were brought right into the house, as it were, and thus would be more likely to overhear everything.

Mr. Phené Spiers said he must confess that had he been a Parisian who had been walking about London in search of a lodging he should have been rather astonished at Mr. Cates's complaint as to the similarity of the houses of Paris. Except that the bricks in some houses were of one colour, and those in other houses of another hue, and except that the cement dressings of some houses had cracked or were peeling off while others remained intact, there was no very great variety in London houses. Although perhaps Englishmen might see no great difference in French houses, Frenchmen saw the very greatest differences between them. Every house in France was specially designed for its purpose, and no French architect ever thought of designing the same façade for two different houses. Indeed, the French architect spent a vast amount of time on his designs. If we adopted the "flat" system in this country, it would be difficult to know what to do with the *concierge*, who was a most important, though a very dangerous, individual, unless it was made worth his while to be friendly. He did not think that an Englishman, whose house was his castle, would submit himself to the tender mercies of the *concierge*.

Mr. H. H. Statham reminded Mr. Spiers that in Edinburgh, where houses in flats abound, the *concierge* was not known. The street-door of each house opened on to the stair-landing, and was attended to by the occupier's own servant. Therefore, the *concierge* was not a necessary concomitant of a house in flats.

The vote of thanks having been carried by acclamation, Mr. White replied to some of the points raised during the discussion. Mr. Cates, he said, had inferred that the commercial system of London was not favourable to good building; but the real reason why we did not have good houses in London was that the houses and the land belonged to different people. The feudal system still existed in London, which belonged to only a few people, and there was no community of interest between the owners of houses and the ground landlords. The question put by the chairman as to the comparative cost of Parisian and London houses per foot cube was not easy to answer, because the French architect never thought of such a dimension as a foot cube or even a *mètre* cube; he calculated at per *mètre* superficial. A great deal had been said as to the different modes of life prevailing in London and Paris; the principal difference appeared to be this, that in London we commonly had perhaps two or three families occupying a house intended for a single family, while in Paris each house or flat only accommodated one family. In conclusion, Mr. White expressed his indebtedness to Mr. Bryce, of Edinburgh, Mr. Thomas Arnold, and M. César Daly, for their kindness in lending him plans, and giving him information as to the erection of houses in flats; also to a member of the Association who had, as a sort of honorary overtime, made him some plans specially for the lecture.

The meeting then terminated. The next meeting will be held on Friday, the 17th inst., when Mr. W. Burges is announced to discourse "On Things in General."

THE PRINCE IN CEYLON.

THE COLOMBO BREAKWATER AND THE FUTURE SHIP CANAL OF INDIA.

THE colonists of Ceylon have at last surely reached the summit of their desires. After many years of importunity, they succeeded in obtaining the sanction of the Home Government to the construction of a harbour and breakwater at Colombo, and persuaded the Public Works Commissioners, with much reluctance, to advance the needful funds for the new erection. But they have not laboured or waited in vain, and as a crowning success, the Heir to the Throne has arrived among them opportunely, and has inaugurated the work in due Masonic form. It is somewhat remarkable that the Prince's name should be associated with the three great undertakings which cannot fail to revolutionise the coast traffic of the country. Up to the present time, India, although she has many harbours, has not a single port between Bombay and Calcutta at which a vessel can discharge her cargo on a pier. The Elphinstone Docks at Bombay, which he has already opened, add to the resources of a greatly overcrowded port; and the Colombo harbour cannot fail, not only to develop the wealth of this already prosperous colony, but will share with the Madras harbour works, of which it is expected he will yet lay the foundation stone, in increasing the trade of Southern India, and at the same time in rendering the many useful products of these fruitful provinces cheaper in the home markets. The Colombo breakwater and harbour are from the designs of Sir J. Coode, and the estimated cost is 630,000*l*. They have been planned with an especial view to affording protection for ships during the monsoons, and will consist of a breakwater pier, which will start from the Battenburgh Battery, on the west side of the Custom House Point, and run straight in a north-north-easterly direction for about 1,800 ft., when it will be turned eastward by a circular curve of about 300 ft., and will then again be carried in a straight direction towards east-north-east for a distance of about 1,500 ft., terminating in 28 ft. of water at low water, with a substantial head, having a small lighthouse upon it. The total length of the breakwater pier will thus be 3,600 ft., and the mode of construction is such that the inner or harbour face will in nearly all states of the weather be available for vessels landing and discharging cargo, as far as regards the straight arm nearest the shore, whilst the inner face along the outermost arm will be available at all times. Besides, if extension were at any time required, the seaward parapet of the now proposed northern arm could be removed, and transferred to a breakwater still further to the north, leaving a substantial stone quay, along both sides of which vessels might load or discharge their cargoes. Inside the breakwater there will be two jetties, each 1,000 ft. long, which will accommodate vessels on each side, and will be provided with the necessary railway lines and sheds so as to facilitate transport. These jetties have been so placed that the heads of the vessels lying alongside them will be in the direction of the wind during both the west and north-east monsoons. They will either be constructed of iron, or of "jarrah" timber from Australia. The breakwater itself will be of rubble stone in the base and hearting, and 12-ton béton blocks in the solid masonry parts. The Public Works Commissioners have agreed to advance a quarter of a million sterling towards the cost. The construction of this new harbour and port of call will naturally ruin Point de Galle; but nobody will murmur except those locally interested. Galle, although conveniently situated, is as ugly a place for ships as one could well wish to avoid. The harbour is studded with rocks, and not a few casualties have happened there. An old skipper is stated to have once said to no less a personage than Governor Gregory:—"I never go into it without apprehension, nor get out of it without relief"; and, as we shall show by-and-by, if the Paumben Canal be cut, as it must be before many years elapse, it will be utterly useless, while, even as it is, it is totally inadequate to meet the growing requirements of the steam traffic, which has been immensely developed by the opening of the Suez Canal. Galle is only thirty miles nearer Aden than Colombo, but the latter is the much more accessible port of the two. Sailing-vessels in making Colombo have not to contend with the treacherous current which exists off Galle, and sometimes sweeps them to leeward, giving them a month's additional work to regain their former position; and steamers when making Colombo at night have no occasion to keep up steam, as they can anchor at any time in the roads, and at the same time will be able to rely on quick despatch when they can moor to a jetty instead of tossing about waiting for cargo-boats.

As most of our readers are doubtless aware, Ceylon is separated from the mainland of India by Palk Strait and the Gulf of Manaar. Right across the passage lies the island of Rameswaram, which is connected with either shore by coral reefs. On the island are two towns, Paumben and Rameswaram, in the latter of which is a celebrated temple,—one of the great shrines of India. These towns have evidently been great in their time. For the whole six miles of distance between them there exists a paved road, 18 ft. in breadth, which has originally been well laid with enormous blocks of stone, but is now fast falling into decay. On either side of this road are extensive ruins of buildings which, in our degenerate days, would be termed mansions and palaces. Rameswaram, however, in getting old, has lost much of its celebrity, and the town now only contains about 1,500 inhabitants, most of whom are, in some way or other, connected with the service of the temple. On any of the great festivals about 50,000 devotees assemble here, and as the island is holy ground they are compelled to perform certain prescribed ablutions in the sea before approaching the shrine to offer their gifts and perform *pûja* or prayers. The poorer class of pilgrims, who far exceed their richer brethren in number, during their stay are provided with provisions from the stores of the temple, which are well supplied with every kind of grain, oil, and ghee, by the donations of rich individuals and native princes, who at different times have made over large grants of land for this purpose to the Brahmins of the temple. The building itself is not architecturally wonderful, but the jewels in the temple are reputed to be very rare and valuable, and some of the pearls are said to be of great price, they having been accumulating for many generations from the shrine possessing the right to the share of three boats, free of expense, every year the pearl banks of Ceylon are fished. This right has been continued during the government of the Dutch and English up to the present time. On the adjacent mainland also there are many fine temples and monuments, the chief of which perhaps is a magnificent column placed in the centre of a small fort in the village of Shalavanai Kapatnam, which was erected by the Rajah of Tanjore in 1814 to commemorate the victories gained by the British troops over those of France.

Native boats and vessels of light draught can even now sail through the narrow Paumben Channel, and so save 360 miles between Bombay and Madras, or, in other words, the whole distance round Ceylon. Such a saving has long been an object of desire to shippers and shipowners. At the very beginning of the present century Colonel Manuel Martinez exchanged sentiments with Stephen Rumbold Lushington, of the Madras Civil Service, then in charge of the southern provinces of Madras, regarding a

removal of the obstruction to the trade of Malabar, Coromandel, and Bengal, caused by the shallowness of the channel; but no practical examination of the pass was made until 1822, when Ensign (now Sir) Arthur Cotton surveyed it, and sent in a favourable report. After that surveys were tolerably frequent, and in 1837, Messrs. Powell and Ethersey, of the Indian Navy, accurately delineated the whole channel, but, strange to say, their report was pigeon-holed until 1871, when a revived interest began to be shown in the subject, owing to the increasing necessities of the steam traffic. Since then the Ceylon colonists have been anxious to have this route opened up, and have spent neither pains nor expense to accomplish their wishes. Unfortunately their desires outrun their finances; and having brought out the best engineers from England to survey the route, and discovered that the cost would be nearly a million and a half sterling, they have been fain to content themselves in the meantime with the opening of Colombo Harbour. This work, however, is merely the stepping-stone to greater things, and in inaugurating it the Prince of Wales has simply initiated a new era in the maritime traffic of Southern India.

PROJECTED NEW PUBLIC WORKS.

RAILWAYS, PIERS, HARBOURS, AND BUILDINGS.

The notices and plans with respect to the applications intended to be made in the next session of Parliament for private Bills, were deposited on the 30th ult., being the last day allowed by the Standing Orders. The entire number amounts to nearly 300, being somewhat less than last year's list. Many of the Bills, however, are in respect of public works of an important character, including new railways and extensions, piers and harbour improvements, public buildings, and town improvements. The railway Bills are 130 in number, eighteen of which are in connexion with projects within the metropolitan area.

Amongst these is a Bill promoted by the Midland Company, which, along with other powers, seeks Parliamentary sanction for the construction of a new line of railway in St. Pancras parish, called the Tottenham and Hampstead North Curve; also another new line called the Poplar branch, commencing by a junction with the London and Blackwall line in Preston-road, and terminating in Wigram's shipbuilding yard. The Bill further contains a clause empowering the company to form several new roads and streets in the locality of the last-named line. For new station buildings and other works in the metropolis power is also sought by the Bill to purchase lands and buildings in St. Giles's, Cripplegate, adjoining the Metropolitan railway, between Whitecross-street and Milton-street; also lands and buildings in Whitechapel, near the Mint; together with other lands and buildings in West Ham, bounded on the north-west side by the North Woolwich-road, on the south-east by the Victoria Docks, and on the north and north-west by Victoria Dock-road. The Great Western Company's general Additional Powers Bill embraces clauses sanctioning the alteration of the levels of Westbourne-park-place, Paddington, to Lord Hill's-bridge; also the closing of Cumming-street, Paddington, from Francis-street to South Wharf-road, and in connexion with closing Cumming-street powers are also sought for the purchase of lands and houses in Fulham, Hammersmith, and Acton. The Great Eastern Company have a general Bill, seeking very extensive powers on different parts of their line, including, in the metropolis, clauses sanctioning the conversion of the Bishopsgate high level passenger station into a goods station, either with or without continuing the present accommodation for passenger traffic. The clause likewise provides for the erection of arches, approaches, and other buildings in connexion with the conversion of the station. Another clause provides for the widening of the line near the Bishopsgate Station, commencing on the north side near Sclater-street, Shoreditch, and terminating near the Brick-lane Station, at Bethnal-green, and on the south side, from the west end of Bishopsgate Station to the bridge in Spitalfields which carries the line over Brick-lane. Other clauses in the Bill authorise the closing up of Sclater-street, Little Patience-street, Farthing-street, King-street, Queen's-court, King's-court, Matthew's-buildings, and Matthew's-court, all in Shoreditch, Spitalfields, and Bethnal-green. Powers are also sought in the Bill for crossing Wheeler-street, Bethnal-green, on the level, for the purpose of connecting the property of the Company on one side of the street with their property on the other; likewise powers for widening the main line from Bethnal-green to Stratford; and also for widening the North Woolwich branch from Stratford-bridge Station to Canning-bridge Station. The Bill further provides for the construction of several new branch lines and sidings in West Ham; the erection of wharfs on the river Lea, at West Ham; together with powers for the purchase of land adjoining the new Liverpool-street Station for the purpose of carrying out additional works and buildings at that terminus. The London, Brighton, and South Coast Company apply for powers to construct a short junction line near Queen's-road, Camberwell, to commence on the South London line of the company, close to the Queen's-road Station, and terminate by a junction with the Crystal Palace and South London junction of the London, Chatham, and Dover Company. Also for powers to construct a number of new arches at New-cross-road, Deptford, for widening the line at that point; and likewise for powers to construct a subway between the Victoria Station of the Company and the Chatham and Dover Company, and the Victoria Station of the District Company. The proposed subway is to commence in the station yard of the Brighton and Chatham and Dover Company, pass under Wilton-road, and terminate in the station of the District Company. The Brighton, Chatham and Dover, and District Companies are to join in the expense. The South Eastern Company include in their Additional Powers Bill a clause for the enlargement of Charing-cross Station, with powers to purchase for that purpose several houses and portions of the sites of Northumberland-street and Craven-street. The East London Company apply for powers to construct a line from Whitechapel by a junction with the line now in course of construction to the Great Eastern line at Bethnal-green. The Bill also contains powers for the construction of a joint station at Shadwell by the East London and London and B'ackwall Companies. The Metropolitan Company have a Bill seeking powers for the construction of a continuation line from Aldgate, along Whitechapel-road, to join the East London; also an extension line from the Hammersmith and City line to Walham-green and Fulham. The London and South Western Company apply for powers to purchase lands and buildings at Twickenham and Merton for extensions and station enlargements. The London, Chatham, and Dover Company promote a Bill in which power is sought for widening the viaduct on their line over Denmark-road, Camberwell. The London and Blackwall Company apply for powers to widen the line near Fenchurch-street, at the west side of Crutched-friars, and at Shadwell, and also for powers to purchase land for erecting a new and enlarged station at Shadwell. There are also several Bills promoted by new companies to be incorporated for constructing entirely new lines in the metropolis. These include a Bill giving powers for the construction of a new line between London, Windsor, and Ascot, commencing by a junction with the Midland line at Hendon, and passing through Harrow and Uxbridge. Also a Bill promoted for constructing a new route to Brighton, called the "Metropolitan and Brighton," commencing on the Mid Kent line in Beckenham, and the London, Chatham, and Dover line at Penge. Two new lines to the Alexandra Palace are projected. One is from the Tottenham and Hampstead Junction to the Palace, and the other, called the Midland and Alexandra Palace line, commencing on the Tottenham and Hampstead line near Hornsey. Another project, powers for which are to be applied for, is the construction of a line by a newly incorporated company, between Turnham-green and Ealing, commencing by a junction with the Kensington and Richmond branch of the London and South-Western line at Turnham-green, and passing through Chiswick, Acton, and Gunnersbury, to Ealing.

The Gas and Water Bills are upwards of fifty in number, of which nine are connected with the metropolis. These include an application by the Southwark and Vauxhall Company for the extension of its limits, and the construction of a new reservoir at Petersham, adjoining the reservoir in Richmond Park, together with the construction of four embankments, 50 yards long each, and the vesting in the company the works of the Richmond Water Company. The Gas Light and Coke Company have also a Bill seeking powers for the construction of new works at Kensington, Woolwich, Barking, and East Ham. The Imperial, South Metropolitan, and North Middlesex Gas Companies each apply for powers to increase their capital. There are also two Bills, promoted jointly by the City Corporation and the Metropolitan Board of Works, the one seeking for powers to make alterations in the rates, and the mode of assessing them, of the several metropolitan water companies, and the other applying for powers for securing a uniform rate of charge for the supply of gas by the metropolitan companies. The Chartered and the Imperial have also Bills for amalgamation, and there is likewise a Bill promoted with the object of transferring to a royal commission the powers and property of the several companies now supplying the metropolis with water, providing for annuities to the shareholders, and compensation to the officers.

Amongst the applications for powers in respect of public works in the metropolis, is a Bill containing powers for purchasing lands, houses, and buildings as a site for public offices, bounded on the north by Charles-street, and that portion of Parliament street which was formerly Upper Charles-street, on the south by Great George-street, on the east by Parliament-street, and on the west by St. James's Park; also a Bill for the acquisition of property bounded on the south side by the gardens of the Victoria Embankment, on the west side by premises in Ivy Bridge-lane, and the houses and premises on the east side of Salisbury-street, on the north by houses in Cecil-street and Beaufort Buildings, and on the east side by houses in Lancaster-place, Wellington-street, Strand, as a site for the new Royal Mint. Another Bill is for powers to purchase land and buildings in the parishes of St. Martin-in-the-Fields and St. Paul's, Covent-garden, near Bow-street, as a site for an intended new Bow-street Police-court. There is also a Bill for establishing an East London ferry, roads, and tramways. The proposed ferry is between Poplar and Greenwich, the works including a floating landing-stage adjoining Blackwall Stairs, 78 yards long, and another similar floating landing-stage at Greenwich, 100 yards long, to be connected with the shore by a bridge 80 yards in length. It is also proposed by the Bill to connect the ferry, by a tramway, with the London tramways at Greenwich. Another Bill, promoted by a company to be incorporated, is for powers to construct a carriage-way under the Thames by a tunnel, commencing at the south end of the Minories, and passing along Postern-row, into and under Trinity-square, and thence turning southwards, passing along and under Tower Ditch on the west side of the Tower, thence under the Thames, and terminating on the Southwark side of the river in Horselydown. The Metropolitan Board of Works also promote two Bills, one for transferring the Chelsea Embankment to the Board, and for powers to construct a new street from Sun-street to Worship-street; and the other Bill to acquire possession of a large area, with houses and other buildings, in Whitechapel and Limehouse, for improvements under the Artisans' and Labourers' Dwellings Act of last session. The recent inundation of the Thames has had the effect of two Bills having been prepared to prevent future floods. One of these Bills is for powers to the Metropolitan Vestries, Boards of Works, and other local authorities and owners of property abutting on the Thames, from Plumstead to Putney on the south bank, and from Barking Creek to Hammersmith on the north, to build walls to such a height as to prevent the Thames from overflowing them. Another Bill seeks for powers to use lands on the banks of the Thames, on Rainham, Wenham, Arley, Purfleet, and West Thurrock Marshes, in Essex; and Plumstead, Erith, Dartford, and Stone Marshes, in Kent, for the accommodation of flood water, and to provide for the construction of embankments, tunnels, bridges, culverts, floodgates, weirs, and reservoirs.

Amongst the several railway and other Bills in the provinces one is for the incorporation of a company to construct a railway tunnel under the Thames from the London, Tilbury, and Southend railway at Grays Thurrock, in Essex, to the London, Chatham, and Dover line at Cobham in Kent. The project is called the North and South Junction (Gravesend). The piers, rivers, and harbours Bills are twenty in number, and include, amongst others, the reclamation of several hundred acres of land on the foreshore of Morecombe Bay for building and agricultural purposes. The Bills of a miscellaneous character include one

seeking powers to purchase 4,500 square yards of land, with houses and buildings for the enlargement of the Manchester Post-office. The property proposed to be purchased is some of the most valuable in the borough, and includes two large hotels and several houses in Market-street. There are also bills for extensive town improvements in Leicester, including, in addition to the construction of new streets and the widening of others, works for the deepening of the river Soar for the prevention of floods. The Bill provides for the erection of embankments, piers, locks, and bridges, for facilitating the passage of flood water. The Bill also contains a clause to prevent the construction of cellars in houses to be erected in the low-lying districts of the borough, and also to make further provision for the construction of the foundations of houses and the lower stories. There are likewise Bills seeking powers for extensive town improvements in several of the other large towns in the provinces, including Walsall, Huddersfield, Llandudno, Cardiff, Lancaster, Whitehaven, Southport, and other towns. The Southport Bill embraces a clause seeking powers for the erection of forty cottages for the borough police, and the workmen employed by the Corporation; also powers to construct a new pier and promenade; to erect large new markets and slaughter-houses; likewise powers to purchase six acres of land for the erection of new gas works, and powers to purchase the tramways in the borough.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE Committee of Sessional Papers, with the approval of the Council, have slightly modified, and, indeed, added to, the programme which we originally published. Mr. Chisholm, the Government architect of Madras, will read his paper on January 31st, 1876. Mr. James Fergusson, F.R.S., has consented to read a paper "On the Erechtheum at Athens," on February 28th. The subject is certainly not a new one, but the building is one about which there is even now as much uncertainty as there is printed description. It is not improbable that Mr. Fergusson, who has recently had occasion to investigate the matter, may succeed in theoretically restoring the building. In any case a recital of his views upon the subject cannot fail to be valuable.

NEWCASTLE-UPON-TYNE WORKHOUSE INFIRMARY.

AT the meeting of the Newcastle-on-Tyne Board of Guardians on the 26th of November, a report upon the workhouse infirmary, from Dr. Mouat, her Majesty's Local Government Board Inspector, dated November 20th, was read by the chairman. The report spoke in very high terms of the infirmary.

We may add that the building was erected four or five years ago under the superintendence of Mr. Septimus Oswald, of Newcastle, architect. The above report is not the first official commendation which the building has received, the Lunacy Commissioners having reported upon it when near completion as "incomparably the best accommodation for the sick poor anywhere known to them, creditable to the humanity as well as public spirit of those who have provided it, and an honour to the town."

ST. ANTHOLIN'S TOWER.

THE British Archæological Association, as our readers know, lately memorialised the Ecclesiastical Commission for England against the proposed demolition of the steeple of St. Antholin's Church, Watling-street. To this memorial the following answer from the Ecclesiastical Commission was received last week:—

"The Ecclesiastical Commissioners for England have carefully considered the reasons in favour of the preservation of the tower and spire of the late church of St. Antholin, in the City of London, which are set forth in the memorial addressed to them by the British Archæological Association, and the views and arguments on the same subject which were orally expressed to this Board on the 25th ult. by the deputation from the Association, and by the churchwardens of St. Antholin's and the churchwardens of St. John the Baptist upon Walbrook; and I am now directed to state that the Commissioners can discover no grounds which would justify this Board in abstaining from doing, or in delaying to do, that which by section 3 of the Order of Her Majesty in Council on the 5th of August, 1875, which has the force of an Act of Parliament, is directed to be done, and that section, as you are aware, with a view to the ulterior proceedings in the same Order contemplated, directs 'that the said spire and tower of the said church of St. Antholin shall be taken down.'"

Under the dominion of this Board the rapid disappearance of the land-marks of London's past history may be feared.

SNOWFLAKES.*

SNOWFLAKES falling, ever falling,
Through the gaunt and leaflees trees;
Chilly gloom the soul appalling,
As the very snowflakes freeze;

Freeze, on gable, wall, and tower
Of the ghostly church beyond;
Freeze, on ivy-mantled ruin
Close beside the Witches' pond,—

Pond, whose black unholy waters,—
Shaded by tall dismal yews,—
Heave and swell with sullen motion,
When no breath of Heaven pursues.

Ne'er shall breath of Heaven linger
On this pool so dark and dread,
For a fearful crime lies hidden
Deep within its murky bed.

Nameless is the crime; forgotton,
Save for this unresting tide
Seeming to resent its waters
Should so dire a death-deed hide.

Snowflakes rest not on its bosom;
Frosts ne'er sparkle o'er its face;
Birds and beasts and insects shun it,
Seeking other resting-place.

* * * * *

But the snowflakes still are falling,
Whitening all the earth around;
Dark and dense themselves appearing,
Ere they hover to the ground.

Thus, oft, messengers from Heaven,—
Trials, sorrows, pains, and tears,—
Look all black when distant from us;
But as each our poor heart nears,

Then we find how pure and tender,—
Soft as snowflake to the touch,—
Proves the trial that we shrank from,
Strove against, and fear'd so much.

R. F. H.

AN ELECTION BY THE BRENTFORD LOCAL BOARD.

SIR,—The attention of this Board has been called to a letter under this heading appearing in your last Saturday's issue purporting to be signed by a correspondent styling himself "One of the humbugged," and to which you have been pleased to append an editorial note endorsing entirely the statements contained in the letter, and the conclusion sought to be drawn therefrom.

I am directed by the Board to express their surprise that a newspaper of the high standing of the *Builder* should commit itself to the expression of an opinion based upon statements in a communication from a nameless correspondent, and that without making some inquiry into the foundation of the assertions put forward. In this instance inquiry would have satisfied you that the election of the new surveyor, to which your correspondent refers, was conducted openly and fairly; that at the time the advertisements were issued no member of the Board (not even, I believe, the gentleman who was eventually elected) had the least idea that the member referred to would be a candidate for the office; and that it was not until his application for the appointment was opened (amongst the rest) that the Board generally were made aware of the fact.

The statement that he "was elected and actually attended the Board as the surveyor, and received instructions to proceed with certain works required to be done before sending in his resignation," is entirely untrue, as also is the suggestion that "the whole matter from beginning to end was cut and dried." The insinuation that this Board "is composed of the smaller tradesmen of the district" needs no remark. Those who know *how* the Board is composed know how unfounded is the observation.

STEPHEN WOODBRIDGE,
Clerk to the Board.

* We go a little beyond our province to print the following lines from a correspondent of long standing; their merits and the season must justify us.

THE INDECOROUS CIRCULAR.

SIR,—You have remarked upon a circular addressed by me thanking the contributors to the fund raised for the family of the late Mr. W. H. Knight. Neither yourself nor Mr. Baker need apprehend that this will be made a precedent; it was an exceptional instance, and I have to thank many of the district and other surveyors for their very handsome donations. Mr. Knightley's subscription was delayed in transmission, and did not reach me until after the issue of the circular; the amount is now increased 2*l.* 2*s.*; 227*l.* 10*s.* in all. I had inserted his name feeling assured he would assist me, and hence by an accident it appears with the "0" attached. Several other district surveyors declined, but I did not invidiously refer to them, as they had perfect liberty to refuse. With reference to the "other officer," it was a joke among ourselves inserted for special reasons, and in which I would respectfully submit neither Mr. Baker nor the general public are concerned.

F. W. GODDARD.

SIR,—Had Mr. Goddard's indecorous circular not been publicly referred to, I should not have troubled you with any communication. I will, however, tell the public what I know about it, not that I feel called upon to explain, but that I wish to do so. I did receive a circular asking a subscription for Mrs. Knight, and the next morning information that my clerk's life had been attempted at Hammersmith, and that I was to be shot the next day. This diverted my thoughts, upset my arrangements, gave me extra work to do, and occupied my time several days at the police-court and Old Bailey, and it was not till Wednesday last, when the justices signed the necessary documents relegating the would-be assassin to a criminal lunatic asylum, that I felt at ease.

Then I bethought me of Mrs. Knight, and was in the act of sending a donation, when Mr. Goddard's circular arrived, which on one side sarcastically thanked me for my subscription, and on the other side assigned to me the zero position in the scale of benevolence. My first impulse was to burn the cheque; but I thought better of it, and sent it by other hands, and can only regret Mr. Goddard's hasty conclusion and want of good taste in despatching that ridiculous kind of *lettre-de-cachet*.

T. E. KNIGHTLEY.

STEETLY CHAPEL.

SIR,—Every one of right feeling must sympathise with the wishes expressed by your correspondent "M. A." (p. 1068, *ante*), that this beautiful specimen of Norman work may be not only restored, but re-dedicated to sacred uses.

It was visited by the British Archæological Association, in the month of August, 1873, during their Sheffield Congress, and in their *Quarterly Journal* of the following month of March will be found an accurate description of the building, a ground plan, and a good perspective view of the interior (page 114).

The chapel is interesting geologically, as well as in an architectural and archæological point of view.

The stone is magnesian limestone, from the same district as that from which what was used in the Houses of Parliament was obtained.

The mouldings and ornamental work generally are clear and well preserved,—a remarkable contrast to those of the great building at Westminster.

A wish was expressed that some steps be taken to induce the noble owner of the site to assist in restoring this beautiful specimen of Norman work, and I trust that something may yet be done towards that end.

"A MEMBER OF THE
BRITISH ARCHÆOLOGICAL ASSOCIATION."

THREATENED DESTRUCTION OF TADCASTER CHURCH.

SIR,—As one who deeply regrets the loss of our old landmarks, and more especially when the loss is aggravated by the fact of its wantonness, I lament the destruction of Tadcaster Church. Perhaps your kindly notice of this letter in your widely-read journal may be of some avail.

One of the churchwardens says that Sir Gilbert Scott has rendered a certificate to the church authorities there that the building is *quite sound*, and that no necessity whatever exists for its removal. It appears that some local builder examined the ancient rafters of the roof, and pronounced them rotten—the old, old story—and many a glorious church has perished through such a lame and miserable statement. The real reason for the rebuilding of Tadcaster Church is not that the present structure is incapable of restoration, but that some of the Tadcaster people have set their minds on having a brand new building, and they are deaf to all entreaties for the preservation of the fine old parish church, which will soon be a thing of the past. And so by degrees we are losing, year

after year, first one old place and then another, and which in many cases in after years becomes a matter of regret even to those who were the desecrators and destroyers. J. G.

MOVEMENT IN INDIA.

In commemoration of the visit of the Prince of Wales to Ceylon, Mr. C. H. de Soyza, a local millionaire, proposes, with the sanction of the Government, to erect and endow two boarding-schools, one for boys and another for girls, at a cost of 15,000*l.* He further intends to endow with 5,000*l.* two chairs,—one Pali and the other Sanskrit,—in connexion with the Colombo Academy; and will also provide the requisite funds for opening a new model farm.

Another Singhalese, Sampson Rajahpakse, has given 1,000*l.* for another scholarship at the Academy,—to be styled "The Prince of Wales's Scholarship."

The young Rajah of Kolapore means to devote from 20,000*l.* to 30,000*l.* to build a hospital at his capital, to be called the Albert Edward Hospital.

Government House, Calcutta, is now nearly ready for the reception of the heir to the Crown. Some idea of the vast amount of work which has been done may be formed from the fact that the running ornament and lines on the beams of the roof of the Marble Hall alone, with its panels, measures seventy-three miles. The Vice-regal Palace is particularly rich in paintings, and Lord Northbrook, who is a connoisseur in art, has already had cleaned, reframed, and hung in suitable positions, no fewer than thirty-nine portraits and landscapes by the following artists: Sir Peter Lely, Sir Joshua Reynolds, Sir Thomas Lawrence, Sir Watson Gordon, Sir George Hayter, Beachey, Chinery, Holmes, Hayes, and Richard Wilson.

The Madras Harbour Works are being brought into order for the grand Masonic display which will take place at the laying of the foundation-stone. The stone itself, which will weigh about five tons, will be of blue granite, and will be lowered on to several large marble slabs already *in situ* beneath. The trowel and measuring-rod which will be used by the Prince are both of gold, and have cost 1,700 rupees.

The Madras Government have sanctioned an expenditure of 166,000 rupees for the erection of a new gaol at Palamcottah. The sanitation of the building will be strictly attended to.

MANCHESTER PUBLIC FREE LIBRARIES.

The report (1874-5) shows that the total number of volumes on the shelves of all the libraries is 132,887, of which 53,821 are in the reference, and 79,066 in the lending, libraries.

The returns show that the total number of volumes taken by the readers to their homes during the year has been 554,779, against 590,646 in the preceding year.

The number of applicants to whom books have been delivered for home reading amounts to 474,216, and that for books to be used in the reading-rooms to 135,445; the number of readers who have used the newspapers and periodicals placed on the stands and tables of the news-rooms amounts to upwards of 1,639,365, showing that the number of times that persons have availed themselves of the free libraries during the year amounts to 2,249,026, as compared with 2,355,028 in the year preceding.

Plans for the building of the Cheetham Branch Library were obtained from several architects. Those of Messrs. Barker & Ellis were selected by the committee, after long and careful consideration and consultation with Messrs. Mills & Murgatroyd as their professional advisers. The work is now in the hands of the contractor, and will be carried out with all reasonable speed.

OILING SASH-PULLEYS.

Sir,—As I am one of those who think patents mischievous, I send you, *pro bono publico*, a short description of an invention which I made above a year ago for enabling the pulleys for heavy sashes to be oiled, and which has been used throughout a large house, nearly finished, by Messrs. Longmire & Burge. It consists only of adding two thickish pieces to the cast-iron side-plates of large pulleys, with small oblique holes in them from the pivots up to the front plate, where are two corresponding holes, down which oil can be poured to the pivots. Pivots cannot practically be oiled in any other way without taking out the whole pulley, which loosens the screws, and, in fact, never will be done. I have also a new window-fastener, for preventing either opening from without or rattling of the sashes when open, which I will describe some other time. Edm. Beckett.

WINCHESTER.

A new vicarage-house has just been completed for the parish of St. Faith, Winchester.

The plans were prepared under the directions of Mr. Charles Pink, architect. The clerk of works was Mr. Thomas Micklam; the contractor, Mr. G. Marsh. The vicarage is pleasantly situated on the side of a hill overlooking the valley of the Itchen, with the villages of St. Cross and Twyford in the distance.

It contains dining-room, 21 ft. by 16 ft.; drawing-room and study connected with folding doors, 38 ft. by 16 ft.; parish room, 14 ft. by 13 ft.; large entrance-hall, vestibule, and lobby, besides the usual offices for servants on the ground-floor, cellars below, and bed-rooms above, with dressing-rooms, conveniences, &c. A verandah runs along the south and part of east fronts.

DORCHESTER BOROUGH SURVEYORSHIP.

On the 1st instant, the Committee reported to the Town Council that they had held two meetings with reference to the vacant office. There were forty-three applicants, from whom they had selected seven, as possessing satisfactory testimonials,—Mr. Chick, Dorchester; Mr. Creame, East Grinstead; Mr. Hawkins, Newent; Mr. Nicholls, Bristol; Mr. James Tomlinson, Yeovil; Mr. W. Norman, Weymouth; Mr. Winship, Malvern.

The committee asked the council to make a selection from these candidates preliminarily to the appointment. The testimonials of each, with the exception of those of Mr. Chick, who is well known to the council, were read over, and the list reduced to three, Messrs. Chick, Norman, and Nicholls, who were asked to attend on (this) Saturday.

RAIN AND TELEGRAPHY.

Sir,—One of your correspondents recently drew attention to the extreme probability of the poles of the electric telegraph system being at least a probable cause of the predominance of moisture in the atmosphere. I should like to assist him in the inquiry, if he chooses to pursue it; for I think it extremely probable that, as far as he goes, he may be on the right track. Let him add to the polarity of the telegraph-poles the prodigious amount of waste steam, carbonic acid, and water, not to mention hydrogen in other forms, which is given off by our railway locomotives in the immediate region of the telegraph lines, and I am sure his conviction will be justified.

A. M.

STAINED GLASS.

Wheatley.—Three windows in the chancel of Wheatley Church, Oxon, have just been filled with stained glass representing the principal events in our Lord's life. They are by Fouracre & Watson, of Plymouth.

Elmham.—A painted window, to the memory of the late Lord Sondes, has just been placed at the east end of the chancel of North Elmham Church, Norfolk. The window, which is by Messrs. Clayton & Bell, has for its subject the Transfiguration of our Lord.

March.—The east window of the church of St. Wendreda, March, has just been filled with stained glass by Clayton & Bell, in memory of the late Mrs. Green and her sister. The central figure represents our Lord in majesty, surrounded by angels. On the right are figures of St. James and St. John, and on the right centre St. Agnes and St. Margaret. On the left are figures of St. Peter and St. Paul, and on the left centre St. Elizabeth, of Hungary. The base exhibits the Incarnation in a series of five representations, consisting of the Annunciation, the Nativity, the Crucifixion, the Entombment, and the Marys at the Sepulchre.

The Regulation of Sewage Grounds.—Mr. Alfred Smee, F.R.S., read a paper on this subject at the Society of Arts on the 1st inst., and made his accustomed onslaught on Croydon. Dr. A. Carpenter was present, and replied vigorously, as he has done before. Croydon has certainly been very unlucky.

Books Received.

A Concise Glossary of Terms used in Grecian, Roman, Italian, and Gothic Architecture. By John Henry Parker, F.S.A. J. Parker & Co., Oxford and London.

A new edition has been published of this capital little book,—the 4th. A topographical Index to the illustrations has been added.

VARIORUM.

A second edition of "The Timber Merchant's and Builder's Standard Guide," Weale's series, has been published by Messrs. Lockwood & Co. It contains a large number of useful tables. When we read, as a note to the second edition, that the duty on timber having been taken off since the publication of the first edition "care must be given to deduct the same on the calculations for cost, &c.," and afterwards read, at the foot of the "particulars of brick and mortar work," "wages 5*s.* per day," we are forced to think that a little further revision of the new issue would have been useful.——Part 35 of Cassell's "British Battles by Land and Sea," by James Grant, has been published, and concludes a work which cannot fail to be long popular. It is to be immediately followed by Cassell's "History of India," in monthly parts. With Part I., as a presentation plate, a portrait of the Prince of Wales will be given.——"An Old Story." The edition of 10,000 has been exhausted in somewhat less than a month. Mr. Hall is printing a new edition, that will be ready for issue on the 12th of December. We are glad it is rightly appreciated.

Miscellanea.

The Melbourne Intercolonial Exhibition.—The Melbourne Intercolonial Exhibition of 1875 affords a striking illustration of the rapidity with which a young country like Victoria can acquire all the elements of national greatness, strength, and prosperity. It is an index of the present state of learning, art, and manufactures in the colony, and as such its importance can hardly be over-estimated. The multifariousness, no less than the excellence, of the exhibits in every department cannot fail to be a matter of felicitation to every well-wisher of this flourishing colony, as it proves how successful it has been during the last twenty years in developing its natural resources and establishing those industries without which no urban population, and consequently no nation, can hope to permanently prosper. The Exhibition was formally opened on the 2nd of September, by his Excellency the Acting-Governor, in the presence of an immense concourse of spectators. Owing to the exertions of the officials and assistants the disposition of the various exhibits had been completed prior to the ceremony, and the appearance of the interior of the various buildings was very attractive.

Messrs. Sargood & Ewen's Warehouse at Dunedin, N.Z.—This firm, being desirous of erecting a building of first-class character and worthy of the city in which it is to be built, determined to call for competitive designs from a select few of the leading architects of both Melbourne and Dunedin; in all twelve designs were sent in, and after examination the first premium was awarded to Messrs. Reed & Barnes, of Melbourne, and the second to Mr. J. M'Gregor, C.E., of Dunedin. The building will stand on two contiguous blocks of ground extending from High-street to Dowling-street. The front to High-street is four stories high; the Dowling-street front, standing on a higher level, has only three stories above the ground. The building is in the Italian style of architecture, the elevation being divided into bays by piers and pilasters. The fronts have a bold cornice surmounted by a balustrade and parapet. A handsome pediment, which rises over the centre of the High-street front, forms an appropriate finish. The various floors are supported on iron pillars and girders.

New Post-office for Manchester.—The Post-office authorities in London have already begun inquiries with a view to securing all the property between the present office at Manchester and Marriott's-court, including the Clarence Hotel. The new building, if this scheme should be carried out, will be bounded by the Commercial Hotel on one side, and on the three other sides it will have Brown-street, Marriott's-court, and Spring-gardens.

Metropolitan Drawing Classes. — On Monday evening last the Lord Mayor distributed the prizes to the successful students attending the drawing classes in connexion with the Science and Art Department, South Kensington, conducted by Mr. W. Busbridge and his assistants, Messrs. Ellercamp and Topple, in the large hall of the City Terminus Hotel, Cannon-street, which was crowded on the occasion. The Queen's prizes and the certificates gained by the students at the examinations for the present year were considerably over 500, the students who gained them belonging to the science classes of Deptford, Marylebone, Paddington, Somers Town, Lambeth, Kennington, Westminster, Hoxton, Battersea, Kilburn, and Woolwich Royal Arsenal Mechanics' Institute. Mr. Buckmaster having addressed the meeting, the Lord Mayor distributed the prizes among those who had been found entitled to them, and after he had done so a resolution was adopted to the effect that the efforts now being made by the Science and Art Department to spread sound scientific and artistic knowledge among the industrial classes deserved to be acknowledged, and that every encouragement ought to be given to the extension of technical education, which the meeting trusted the various City companies would be induced still further to aid.

Ely Cathedral.—A meeting in furtherance of the restoration of Ely Cathedral was held in the Guildhall, Cambridge, on the 24th ult. The proposal made at the late Ely Diocesan Conference, on the occasion of the opening of the lantern and octagon (after decoration by Mr. Gambier Parry), has met with great encouragement. The Dean has already received promises amounting altogether to 3,150*l.*, which will enable the committee to pay off the debt still remaining upon the decorated lantern, and leave more than 2,000*l.* for further restoration. It is hoped that in due time the rebuilding of the north-west transept may be accomplished; but at present the general feeling seems to be that the exterior restoration of the lantern should be first undertaken. Resolutions were adopted to the effect that the first step to be taken in the further restoration of the cathedral should be the completion of the exterior of the octagon, and that the Dean and Chapter communicate with Sir Gilbert Scott upon the completion of the restoration of the exterior of the lantern, in accordance with designs already prepared.

New Hall at Carlisle.—On the 23rd ult. the new hall of the Carlisle Young Men's Christian Association was opened. The principal material used is brick, the façade being relieved by designs in darker-coloured brick and white stone facings and mouldings. Along the front of the building on the ground-floor are two reading-rooms, and behind is a lecture-hall capable of accommodating 450 persons. It is 62 ft. long and 27 ft. 6 in. wide. There is a gallery to the hall, so designed that it can be used for class-rooms and other purposes. Mr. James Lees, a member of the committee of the Association, prepared the plans and superintended the erection of the building without charge. The cost was 2,200*l.* The following were the contractors: — Building, Mr. Simpson; joiner, Mr. Wright; slater, Mr. T. Nanson; plasterers, Messrs. Johnston, Brothers; plumbers, Messrs. W. & R. M. Hill; painter and glazier, Mr. Westray; ironfounders, Messrs. Lees & Graham.

Church Decoration at Eton.—During the past month the east wall of St. John's Church, Eton, has been in course of decoration, and is now nearly finished. The ashlar on each side of the alabaster reredos is ornamented with a design, consisting of oak leaves, acorns, and circles of gold. The arcades on either side have a diaper pattern in rich colours. The columns represent black marble. The capitals are of a light colour, picked out with gold. Between the spandrels there is a small flowing pattern. The wall above the arcades on each side of the window is ornamented with a piece of foliage and gold stars, with a Greek cross. The artist employed is Mr. Charles Hudson, of London, under the direction of Mr. Ferrey, the architect of the church. Designs have been furnished for the decoration of the whole chancel, but will not be carried out until sufficient funds are forthcoming.

New Railway at Shields.—The contract for the construction of the new railway from the High Shields station to the proposed new railway station at the foot of King-street, South Shields, has been let to Mr. Walter Scott, contractor, Newcastle, who will commence work immediately.

Proposed New Exchange at Halifax.—The *Halifax Guardian* states that "a gentleman largely interested in the commercial welfare of the town" has made an offer to the Exchange Committee that he will build a new exchange and newsroom, asking only a reasonable percentage on the outlay, which is estimated at 10,000*l.*, and giving the committee power to purchase in five, ten, or fifteen years. The site he proposes is one at the bottom of George-street, now occupied by wool warehouses and offices. It adjoins the Halifax and Huddersfield Union Bank, and is in immediate proximity to the Post and Telegraph Offices, the Inland Revenue Offices, &c. In fact, no more central position could be chosen. A part of the plan is the opening out of a new street from George-street to Fountain-street, thus giving direct access to the Exchange from the south end of the town.

National Association of Carpenters and Joiners.—The Board of Management of this association have just issued their first annual report, from which it appears that the association has so far been a success, financially and otherwise. The expense of working the society for the first thirteen months has been but a little over 20 per cent. of the ordinary income. The Board strongly recommend the adoption of life insurance in connexion with the association, and urge that it can be effected with unusual advantages, seeing that the cost of management would be exceedingly light. The income of the year amounted to 1,030*l.* 5s. 1d.; the expenditure was 787*l.* 16s. 9½d.; the net surplus on the year being 298*l.* 8s. 3½d. This sum, added to that in hand June 1st, 1874—viz., 457*l.* 9s. 3½d.—leaves a balance in favour of the association of 755*l.* 17s. 7d.

Carlisle Cathedral Organ.—The organ in Carlisle Cathedral is now undergoing enlargement. When the instrument was erected, from specifications by Mr. Best and Mr. Ford, it could not be completed, principally on account of want of funds; nor was it thought altogether desirable or important that the back of the organ should be finished so long as St. Mary's Church blocked up the nave. The old parish having now a church of its own, and the nave of the cathedral being cleared from all obstructions, the dean and chapter have determined to complete and fill the back of the organ with pipes, as well as to add other stops as originally intended. It is stated that the back of the organ will now be filled with 32-ft. metal pedal pipes of the same scale as the Albert Hall organ, London. The work has been placed in the hands of Mr. Willis, who built the organ.

Excavating Machine.—Mr. E. W. Stoney has patented an invention which relates to improvements in the construction of apparatus for excavating. The invention relates to the construction of an improved double-acting combined helical and cylindrical excavator, and of a simple and efficient handle for working the same. The peculiar novel features of this improved excavator are that it can be opened at parts of its bottom, or of its bottom and cylindrical sides, for and during the process of excavating, and closed when full of excavated material for and during the process of lifting or raising the same to the surface of the well or cylinder being sunk to be emptied. In each modification of its construction the excavator is made cylindrical in shape, with an open top, with bottom helical cutters, and side cylindrical cutters.

The Villa Barberini.—An Italian paper states that an archæological discovery has been made at the Villa Barberini, near Castel Gandolfo, on the spot where stood the palace of the Emperor Domitian. Two fragments have been exposed of a cornice in white marble, having together a length of 16 ft., a width of 39 in., and a height of 20 in. They are in a good state of preservation; and the design and the sculpture are said to be most artistic. The rose ornaments, the borders, the brackets of acanthus-leaves, the scrolls, the foliage, and all the other portions of the entablature are in relief. On the upper portion, where the marble had not been hewn, there are the joints in iron and lead of the objects which were superimposed.

What did it Cost originally?—Some idea may be formed of the extent to which Sebastopol was fired upon when it is stated officially that from a tax of 6d. per cwt. which the Government levied upon the proceeds of the sales of old iron, shot, and shell picked up and sold by the people, a sum of nearly 15,000*l.* was realised.

A Great French Ironmaster.—The Parisian journals record the death of M. Schneider, who created the largest ironworks in France,—the vast machine manufactory at Creusot,—which supplied the French navy, and is a formidable rival to this day of English ironworks of the same character. It is to M. Schneider, born seventy years ago, that France is indebted (according to a Paris correspondent) for all the modern inventions and improvements of iron machinery as applied to shipping and manufactures. Practically speaking, no Frenchman of the day has performed so active and useful a part in promoting manufacturing wealth as the late proprietor of the Creusot Works.

Fire at Eton College.—A fire which broke out in the Eton College bakehouse, on the south side of the college, has destroyed the tapestry presented to the college in 1613, representing Christ in the Temple sitting in the midst of the doctors, "hearing them and asking them questions"; seventy bed-covers given by the Duke of Northumberland in 1760, the college china, and other valuable property. The tapestry was considered to be exceedingly valuable, and was preserved as a relic. It formerly hung in the ancient college hall, behind which a fire-place was discovered on its removal a few years ago, and it was used for purposes of decoration on any special occasion.

Serjeants' Inn, Fleet-street.—Now that the Judicature Act has come into operation, the title of serjeant-at-law has been practically abolished, and accordingly it is stated that the members of Serjeants'-inn, Chancery-lane, will, as soon as possible, sell the property, the value of which is estimated at about 40,000*l.*, and a proposal has been made to devote the money realised by the sale of Serjeants'-inn to the promotion of legal education. The inn is the absolute property of the serjeants'-at-law, now thirty-six in number. The statement as to proposed sale was denied some time ago, but we have reason to know that it is quite correct.

Chandelier for the Greek Cathedral, Bombay.—Messrs. Thomas Ford & Son, of Birmingham, have just completed a large chandelier for the Greek Cathedral, Bombay. It is Grecian in design, and is said to be an enlargement of a similar pattern in the cathedral at Manchester. The chandelier proper is 9 ft. in height by 7 ft. 6 in. in diameter, and it has forty-five brackets,—thirty in the lower, and fifteen in the upper tier—made to contain wax candles. Much care and elaboration have been bestowed upon its details and workmanship. It is brightly burnished and lacquered in every part, the rose, or ceiling-plate, being 3 ft. 9 in. in diameter. The chandelier will be pendent from the ceiling some 52 ft.

Water Supply of Warwick.—In laying mains for conveying water from the new source of supply at Haseley, some three miles distant, an excavation 40 ft. to 50 ft. became necessary. Part of the works have been let under a contract, in which the prices were limited to certain materials of a character easily worked. Much harder strata than any for which prices were given have, however, been met with, and a dispute as to value has arisen. The works are stopped, and legal proceedings are likely to arise, unless a proposition made by the contractor to refer the matter to arbitration is accepted.

Questionable Economy.—The Whitby Highway Board have decided that in consequence of the state of the Cleveland labour market and the general reduction of wages, the wages of men in the employ of the Board shall be reduced 2d. per day for the winter. That is (says a writer in the *Darlington and Stockton Times*) because trade is slack in iron and coal, the men who mend the roads are to have less wages, and that in the winter when living is most expensive and out-door labour means exposure to cold and wet! It may be taken for granted that the ratepayers who have to find the money do not sanction such a paltry measure as the reduction of 2d. a day.

Proposed Public Works at Accrington.—Mr. Robert Morgan, C.E., visited Accrington on the 25th ult. to make inquiries into public works for which the local Board had applied for sanction to borrow 16,000*l.* to execute. Part of this money was required for public slaughter-houses and market purposes, 2,000*l.* for street-lamps, and 11,000*l.* for private street improvement. The inspector suggested that the estimate should be increased by 3,200*l.*, so as to cover a site purchased by the Board for public baths.

Monument to a Gaelic Poet.—A memorial in the form of an obelisk, of Peterhead granite, 21 ft. high, has just been raised at Kinloch Rannoch, over the grave of Dugald Buchanan, a Gaelic poet of some note among Gaelic-speaking people. He got a good education, and when eighteen he was apprenticed to a carpenter in Kippen. He afterwards sojourned in many places, till in 1753 he was appointed schoolmaster of Drumcastle, in the Rannoch district. In 1766 he was appointed to go to Edinburgh to superintend the first translation of the Scriptures into Gaelic, but in two years afterwards he was seized with fever, and died at Kinloch Rannoch at the age of fifty-two.

Lady Architects.—The London correspondent of a provincial journal says:—"While Miss Orme and Miss Richardson have set up as conveyancers in Chancery-lane, a new lady doctor, Mrs. Atkin, has started in St. John's Wood. She had previously considerable reputation in Birmingham. Miss Fenwick Miller, who has been delivering a course of lectures on 'Simple Sanitary Science' at Tamworth, under the auspices of the Rev. Brooke Lambert, is going to repeat the lectures in Oxfordshire and also in London, for the National Health Society. The *Boston Women's Journal* advises women to become architects."

Design for a Carpet.—Among the works about to be sent in for the exhibition of works of art at the Westminster Aquarium, we have seen an excellent "design for a Persian carpet," by Mr. W. G. Thomas, a youth of seventeen, who thus exemplifies the result arising from the art-teaching now being developed throughout the country. Mr. Thomas, who is a pupil at the Lambeth School of Art, has obtained first-class certificates, and may hope for a successful future. The drawing, both in respect of form and colour, is very meritorious.

The Grangemouth Waterworks.—Contract No. 3 of the Grangemouth Waterworks has been secured by Mr. Kenneth M'Kenzie, contractor, Kirkcaldy. It embraces the construction of the collecting wells, aqueduct, reservoir, filter, valve-well, &c., as also the diversion of Millhall Burn. The last-mentioned work was commenced a few days ago. Mr. M'Kenzie is likewise executing contract No. 2, which includes the formation of the pipe-track and the laying of the pipes, of which about three-fourths is already finished.

The Sewerage of Lincoln.—In the Supreme Court, Queen's Bench Division, on the 23rd ult., Mr. Gorst, Q.C., obtained leave, on behalf of the Local Government Board, for a rule *nisi*, calling on the Mayor and Corporation of Lincoln to show cause why a *mandamus* should not issue, commanding them to supply the district with a better system of drainage. A special meeting of the council has been held, when it was decided to take immediate steps for the carrying out of the necessary works.

The Huts at Aldershott Camp.—It is stated that it has been decided to replace the present wooden huts at Aldershott Camp with buildings of a more substantial nature, either brick or concrete, and that a vote will be taken in the forthcoming army estimates towards carrying out a portion of the reconstruction next year. The new buildings will be two stories high, and about the same length and breadth as the present wooden constructions. The new quarters and lines will be lighted with gas.

The Temple of Diana at Ephesus.—Mr. Wood has in the press a volume, imperial 8vo., copiously illustrated, "Discoveries at Ephesus, including the Site and Remains of the Great Temple of Diana." This work will consist of a narrative of the Government excavations conducted by Mr. Wood during nearly eleven years. It will contain about 60 illustrations, and more than 200 Greek and Latin inscriptions found in the excavations, and now deposited in the British Museum.

Builders' Benevolent Institution Ball.—The twenty-eighth annual ball in aid of this charity will take place at Willis's Rooms, St. James's, on the 27th of January next. The committee being anxious to increase the funds of the Institution, are desirous that this ball should be a great success, and desire to receive the names of gentlemen willing to act as stewards.

Newton-Stewart.—The Marquis of Bute and Miss Monteith, of Duncree, having subscribed the money needed, the erection of a new Roman Catholic Church, in Newton-Stewart, has been commenced. The building will occupy one of the best sites in the town. The architect is Mr. Goldie, London; and the builders, Messrs. Wallace & Morgan, Coatbridge. The present chapel will be converted into a schoolroom.

Dipton, Co. Durham.—A School Board has recently been formed for the parish of Collierley, which includes the large colliery village of Dipton. Additional school accommodation for 520 children is required within the parish, and the erection of schools for this number, with teacher's house, &c., will shortly be proceeded with. Messrs. John Smith & Son, of Shotley Bridge, have been appointed architects to the Board.

Residences for Irish National Teachers. It is announced that the National Board are now authorised to expend a sum of 32,000*l.* in grants, or in loans, for the purpose of building teachers' residences. Each house will probably be required to contain a kitchen, a parlour, and three bedrooms, and it is stated that plans are in course of preparation for the guidance of promoters and builders.

Roydon, Essex.—In a limited competition for schools at Roydon, the plans of Mr. T. T. Smith, of Bloomsbury-square, have been selected. The following tenders have been received:—

Clarke	£1,357 0 0
Hampton	1,346 0 0
Bentley (accepted)	1,249 0 0

The Institution of Civil Engineers.—The number of the three classes now composing the corporation are,—828 members, 1,454 associates, and 15 honorary members, with a class of students attached numbering 332, making a total of all grades of 2,629, as against 2,412 at the same date last year.

Discovery in Rome.—A *Standard* telegram says a discovery of great historical importance has been made in the grounds of the Palazzo Antonelli, Rome, where a perfect arch of the period of 670 B.C. has been discovered.

Hackney.—We have various notes in our hands, but are forced to postpone attention to them. Observations at a recent meeting of the Local Board, and elsewhere, show that our recent statements have not been without effect.

Institution of Surveyors.—The next meeting will be held on Monday evening, December 13th, when a paper will be read by Mr. W. D. Gardiner, entitled "The present State of the Law as to the Right of Light."

Interesting to All.—Mr. Thomas Blashill will read a paper at the Society of Arts, on Wednesday, the 15th inst., on "Health, Comfort, and Cleanliness in the House."

TENDERS

For new ornamental iron railing to west front of St. Sepulchre's Church, Holborn Viaduct. Mr. W. P. Griffith, architect:—

Lidstone (accepted)	£295 10 0

For building villa residence, Finsbury Park, for Mr. James Toomer. Mr. John Viney, architect:—

Shurmur	£1,080 0 0
Thompson	1,050 0 0
Godden	1,045 0 0
Atherton & Latta	999 0 0

For alterations at the Red Lion, Harrow-road, for Mr. Ridgway. Mr. John Viney, architect:—

Hill	£119 0 0
Mark	116 10 0
Godden	111 0 0

For new schools to be erected in Westminster, for the Governors of the United Westminster Schools. Mr. R. R. Arntz, architect:—

Holland & Hannen	£16,870 0 0
Trollope & Sons	16,482 0 0
Baker & Son	16,460 0 0
King & Son	16,420 0 0
Lucas Brothers	16,327 0 0
Jackson & Shaw	16,045 0 0
Peto Brothers	15,780 0 0
Newman & Mann	15,646 0 0
Brown	14,500 0 0
M'Lachlan & Son	14,283 0 0
Adamson & Sons (accepted)	14,154 0 0

For alterations, additions, &c., at Risley, Beds, for Dr. Banks. Mr. F. T. Mercer, architect:—

Knight & Boston	£814 6 0
Chibnall	773 0 0
Wildman & Eady	745 15 0
Moore	717 0 0

For erecting infirm wards, master's house, entrance gates, administrative offices, and receiving wards at St. Marylebone Workhouse. Mr. H. Saxon Snell, architect. Quantities by Mr. Robert Grigg:—

Baker & Son	£31,894 0 0
Lucas Brothers	31,520 0 0
Smith & Co.	31,250 0 0
Holland & Hannen	30,987 0 0
Webster	30,929 0 0
Chappell (accepted)	30,648 0 0

For alterations and additions to Nos. 6 and 7, High-street, Battersea, for Mr. James J. Morgan. Messrs. Ebbetts & Cobb, architects:—

Aitchison & Walker	£695 10 0
Macey	583 0 0
Wagner	549 0 0
Gowland & Perkins	479 0 0
Steel Brothers	445 0 0

For alterations and additions to warehouse premises, George-yard, Crown-street, Soho, for Messrs. Alfred Goslett & Co. Mr. S. C. Capes, architect. Quantities by Mr. W. B. Catherwood:—

Bird	£2,126 0 0
Killby	2,110 0 0
Willson Brothers	2,102 0 0
Conder	2,055 0 0
Browne & Robinson	2,025 0 0
Scrivener & White	1,998 0 0
Nightingale	1,947 0 0

Accepted for waterworks by the Richmond (Surrey) Urban Sanitary Authority. Messrs. Russ & Minns, engineers:—

Contract No. 1.—Well.

Baker & Sons	£4,652 0 0

Contract No. 3.—Engines.

J. & T. Dale	£6,268 0 0

Contract No. 4.—Reservoir.

Bugbird	£3,600 0 0

Contract No. 5.—Pipes.

Hopkins, Gilkes, & Co.	£5,469 0 0

Contract No. 6.—Laying Mains, &c.

Bugbird	£3,400 0 0

Contract No. 2, for Engine-house, &c., is to be revised and fresh tenders obtained.

For the erection of new school building, adjoining St. Mary's Chapel-of-Ease, Castle-street, Reading. Messrs. Morris & Stallwood, architects:—

Strong (accepted)	£715 0 0

For erection of Shefford Schools. Mr. W. Watson, architect:—

Redhouse	£2,081 0 0
Moore	2,354 0 0
Dunham	2,150 0 0
Twelvetrees	2,030 0 0
Horn	2,294 10 0

For extension of vinery, The Firs, Mitcham, for Mr. Edward Daun. Mr. W. C. Banks, architect:—

Parnacott	£206 0 0
Larke	194 0 0

For office fittings, 67, 68, 69, Houndsditch, for Messrs. H. Hobson & Son. Mr. W. C. Banks, architect:—

Drew	£191 0 0
Colls	160 0 0

For stables at Harefield, Beckenham, for the Trustees of the late Mr. S. J. Cooke. Quantities by Mr. R. W. Griffiths. Mr. W. C. Banks, architect:—

Larke	£437 0 0
Cooper	415 17 3
Parnacott	440 12 0
Marriage	331 10 0

Accepted for additions to Turret House, Southgate-crescent, Reading, Berks. Messrs. Morris & Stallwood, architects:—

Higgs (Bricklayer)	£323 0 0
Sheppard (Carpenter)	288 0 0
Moffatt (Plumber)	150 0 0
Grover (Plasterer)	74 0 0
Hart & Son (Smith)	57 16 0
Warmsley & Co. (Slater)	44 0 0
Wheeler Brothers (Mason)	21 13 0

TO CORRESPONDENTS.

C. S.—F. S.—W. P. G.—M.—W. A.—A. A. C.—F. P.—G. H.—J. V.—W. J. W.—J. T.—J. A.—P. T. M.—T. T. S.—W. J. A.—H. S. S.—R. R. A.—R. M. Y.—T. S.—S. W.—E. L. B.—J. S.—K. & Co.—E. S.—W. B. C.—C. C.—H. H. B.—T. B.—A. S. W. G.—Quercus.—A. H. (the inquiry not desirable. Must be re-attached).—S. J. N. (ditto).—Mr. V. Chertsey (book sent as requested).—T. F. (next week).—J. P. M. (next week).—F. T. B. (next week).—J. S. (next week).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, list of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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